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MAJOR JAMES CARROLL, M. D., U. S. A.[1]

Addresses by Drs. H. A. Kelly; W. H. Welch; W. S. Thayer; Surg.-Gen. Sternberg, U. S. A.; H. H. Donnally; A. F. A. King; S. Ruffin; C. E. Munroe; and J. O. Skinner.

Dr. Kelly:

The late James Carroll was an Englishman, born at Woolwich on June 5, 1854. He received a good school education, and it was intended that he should enter the navy as an engineer student. At the age of fifteen, however, when still at a private school, he emigrated to Canada, in consequence, as he once told me, of a disappointment in a youthful love affair. For some years after he reached Canada, to use his own expression, he "roughed it in the backwoods." I do not know when, or for what reasons he crossed the line and came into the United States, but in 1874, when he was twenty years old, he entered the U. S. Army as a private soldier; or, to use his own words again, he "drifted into the army."

After Carroll enlisted, he was ordered to the far West (Dakota and Fort Custer, Montana) and while serving there as hospital steward he became interested in the study of medicine. He applied for a detail in order to attend medical lectures at St. Paul, Minn., but the application was refused, on the ground that his education would lead to his leaving the service. Subsequently, however, he obtained the necessary permission, and from that time he continued his medical education as best he could and how he could, availing himself of every opportunity for acquiring the necessary knowledge. Finally, on his return to the East, he attended medical lectures at the University of the City of New York in 1886-1887, and at the University of Maryland in 1889-1890 and 1890-1891, receiving his degree of M. D. from the latter institution in 1891.

Carroll became intensely interested in the new science of bacteriology, then just beginning to offer its magnificent promise for the future of medicine, and during the winters of 1891-2 and 1892-3 he worked in the classes in bacteriology and pathology recently opened for physicians and graduate students at the Johns Hopkins Hospital. At that time a coterie of brilliant men were assembled there, drawing daily inspiration from William Welch, among whom were Walter Reed, Councilman, Barker, Abbott, Lafleur, and Gilchrist. It is probable that Reed and Carroll met frequently, although their first direct and close association was in 1895, when Carroll was assigned to duty in the Army Medical Museum at Washington, where Reed was curator. The tastes of these two in scientific work ran in the same lines, and Carroll assisted Reed in the search for Pfeiffer's supposed parasite in the blood of vaccinated calves, children, and monkeys, as well as in other work done at the Columbian University.

In 1899 Reed and Carroll were appointed by Surgeon-General Sternberg to investigate the true nature of the *bacillus icteroides*, which Sanarelli erroneously supposed was the specific agent in yellow fever. Their work on this subject naturally associated them with the study of the yellow fever problem at large, and when, in 1900, an Army Medical Commission was appointed to go to Cuba to investigate the cause and mode of the transmission of the disease, Reed was made chairman and Carroll was placed second in command.

[1] The first nine papers in this number were read at the Johns Hopkins Historical Club Meeting, October 14, 1907, held in memory of Major James Carroll, M. D., U. S. A.

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Carroll sailed with Reed from New York on June 21, 1900, reaching Havana on the 25th instant. Certain facts which came under their observation immediately after their arrival convinced Reed that the most promising line of investigation was that suggested some years before (1881) by Dr. Carlos Finlay, namely, to attempt to discover whether or not the infection of yellow fever was conveyed from patient to patient by means of a particular species of mosquito, also pointed out by Finlay, the *stegomyia fasciata*. Acting upon this idea which was, in reality, generally believed to have been discredited by Finlay's own experiments, Reed outlined a masterly plan of action which was heartily approved by his colleagues. The line of work as planned could not be carried out, however, without some crucial experiments upon human beings, and the members of the Commission, to their everlasting credit and honor be it said, further agreed that it would not be right to allow any outsider to risk his life until they were satisfied from an experiment upon one of themselves that the theory which they sought to test offered some reasonable prospect of successful demonstration. It was Carroll who volunteered, if necessary, to sacrifice his life in this service.

It became necessary just at this juncture for Reed to return to the United States, while Carroll remained in charge of the work at Quemados near Havana. It was on the twenty-seventh day of August, in the year 1900, that Dr. Lazear applied an infected mosquito, that is to say a mosquito which had bitten a yellow fever patient twelve days before, to Carroll's arm. I have been told by Carroll that although he heartily approved of the wisdom of investigating Finlay's theory, he did not himself strongly believe in it, so that on the night after the inoculation he wrote to Dr. Reed half in jest that if there were any truth in the mosquito theory, he ought to have a good dose of the poison. And so the event proved it to be, for on August 31, three and a half days later, he was smitten down with such a severe attack of yellow fever that for some days life itself was despaired of. During the course of this illness a serious complication arose in the form of an acute dilatation of the heart which laid the foundation of the permanent heart lesion which ultimately (seven years later) caused his death.

He described the advent of this untoward and finally fatal complication in the following language:

Within half an hour of the removal of a hot mustard foot bath, and while I was oppressed with a weight of heavy gray blankets, I felt a sudden pain and embarrassment at the heart. The pain was very acute and accompanied by a feeling of distention as if the organ was much distended in diastole. Happily it only lasted a few moments. This was the only time I felt myself to be in imminent danger.

During Carroll's convalescence a little incident occurred which gave him a good deal of amusement. One of his nurses, who came from Tennessee, had had considerable experience with yellow fever, having, indeed, lost a husband and several children from it. One day, early in his illness, Carroll mentioned to her that he had contracted the disease through the bite of a mosquito, and noticed that she looked surprised. Some time later, when he was well enough to inspect the daily records of his condition, he found this entry, "Says he got his illness through the bite of a mosquito—*delirious.*"

It would seem to most men that an attack of yellow fever, voluntarily acquired, was a sufficient excuse for relief from further labors in this field, for some little time at least. But Carroll was not of this fiber—no sooner was he able to be up and about than he set to work to carry on further researches along the lines planned by the Commission, and in which he was so successful that when Dr. Reed returned, early in October, he found the preliminary experiments completely finished and the material for his report upon them ready for him. This report was made in the name of the Commission by Dr. Reed in person, at the end of October, 1900, before the American Health Association meeting in Indianapolis, Indiana.

In November, Reed was once more in Cuba superintending the formation of Camp Lazear and the carrying out of the experiments which established upon an irrefragible basis the fact that yellow fever is transmitted by the *stegomyia fasciata,* and by it alone, or to name the pest according to the new nomenclature, the *stegomyia calopus.* In February, 1901, when the work at Camp Lazear was finished, Reed returned to the United States, while Carroll remained behind at Quemados to investigate certain points concerning the urine in yellow fever, as well as to ascertain how long an infected mosquito was capable of carrying and conveying the infection. In March, upon the completion of this branch of the work, Carroll went home, but in the following August (1901) he is again in Cuba, having returned to make some experiments by which he proposed to determine whether the specific agent in yellow fever was contained in the blood, as well as to settle some associated problems. It is not too much to say that without these experiments of Carroll's the inoculation theory would have remained incomplete, and its usefulness to humanity would have been less assured. Yet their importance has never, perhaps, been sufficiently appreciated by the medical profession, and certainly not by the world at large. Nor has it been clearly understood how entirely the successful accomplishment of this final division of the work was due to Carroll's clear-headedness and determination to overcome all obstacles.

In the hospital of Las Animas at Havana, where Carroll was to work, Dr. John Guitéras had some time before undertaken experiments with the intention of ascertaining whether the propagation of yellow fever in a controllable form would secure immunization among the newly arrived immigrants. Up to the time of Carroll's appearance, however, no case of experimental yellow fever had been produced, in spite of numerous attempts, and the physicians at the hospital were naturally beginning to feel discouraged. Immediately after Carroll's arrival, however, an experimental case did develop, concerning which Carroll wrote to Reed as follows:

August 13, 1901.

Drs. Finlay, Gorgas, and Guitéras were much put out over their failures, but now they are all very much elated. On the evening of my arrival the first case came down, and on the following day

another man. . . . I am making preparations to draw blood from one of these individuals to-morrow.

Dr. Carroll had been sent to Las Animas by the United States Government for the express purpose of carrying on this work, for which the abstraction of small quantities of blood from yellow fever patients was the most essential step, and he had come with the confidence that every facility would be afforded him. His surprise was great therefore, when, on going to draw the blood from the patient in question, permission was refused, for reasons which he states in his letter to Dr. Reed, written two days after the one cited above.

August 15, 1901.

I have to record my first disappointment. When I last wrote you I was making preparations to draw blood from Dr. Guitéras' second case. It was a good one with a constant temperature ranging between 103° and 104° F., and I expected to draw blood from him yesterday. Early in the morning Dr. Guitéras advised against it, for the reason that the moral effect upon the man might be bad. He admitted that the man's general condition at that time was good, but he interposed the objection that the man was bitten for another purpose and that his promise to him did not include any such operation. The matter was decided by Major Ross, who has charge of the treatment of the cases, and who, of course, sided with Guitéras. You can imagine my disappointment.[2]

The situation was a trying one, but Carroll, nothing daunted, determined to secure an experimental case of his own with which no authority could interfere. This plan, retarded the work considerably, as it was necessary first to obtain the means of remunerating the man who might volunteer for the inoculation; he had next to find the volunteer; and, lastly, to wait until he had been infected, developed the fever, and had had it long enough to reach the stage when the blood might be drawn and used to advantage. The money was obtained from the United States government, and volunteers, for the most part from the United States Army, were always forthcoming, but just here another and a puzzling difficulty presented itself, namely that the inoculation often failed, because the patient had already had the fever, but if no one but himself was aware of the fact, he could in this way transact a little profitable business with the paternal government without any prospect of a charge of duplicity being lodged against him.

A suitable case was at last found, but then Carroll found himself confronted with still further unforeseen difficulties. While he was preparing to proceed with his experiments, two fatal cases of experimental yellow fever unfortunately developed among Dr. Guitéras' patients, and this not only alarmed Dr. Guitéras and Dr. Finlay, but created considerable excitement in the public mind. Dr. Reed, disturbed by the exaggerated reports of public feeling which reached him through the press, and hampered in his judgment by the disadvantage of being at a distance, wrote advising against further experiments of this sort. "This leads me," he wrote, "to advise strongly against further experiments on human beings. Our work has been too good to be marred now by a death. As much as I should like to know whether the filtrate will convey the disease I should advise against it." Carroll, however, had no intention of being driven from the field just as the crowning success of these final investigations was at hand, and his correspondence with Reed at this delicate juncture shows that the completion of their labors was due to his ability to decide for himself with the facts before his eyes, without being influenced by adverse surrounding conditions or criticisms. He had the wisdom to rely with modest confidence upon his own trained judgment, even when it differed from that of his superior officer, upon a point in regard to which the superior was imperfectly informed. A most delicate situation, indeed, and we must judge rather by its issue than upon the broad basis of the principle involved.

In all the inoculation experiments at Camp Lazear, as intimated above, there had been no fatal case of yellow fever, and Carroll was convinced that it was quite possible to complete the investigations without really unjustifiable risk to life, as the deaths at Las Animas were due, in his opinion, to special causes which it was well within his power to control in the cases under his personal supervision. Accordingly he proceeded calmly with his preparations, writing to Dr. Reed that as long as he did not expressly forbid further the investigations he thought it right to continue them. Dr. Reed's confidence in Carroll's opinion is shown by the fact that on receipt of the letter above referred to, he at once withdrew his objections and telegraphed to Carroll to proceed according to his own judgment. This episode, I think, reflects high credit upon Dr. Reed's character, for few men are so lacking in official pride as to be able quickly to reverse a positively expressed opinion, particularly when an implied order has gone forth to a subordinate.

Even when the completion of his task was close at hand, Carroll had to encounter yet another and a peculiarly trying

[2] The following note is appended by Major Ross:

"Having recently arrived (his third visit to Havana) Dr. Carroll evidently did not understand the status of the personnel of Las Animas Hospital. I was the director of said hospital, while Dr. Guitéras was the chief of its laboratory, which included the mosquito work—'Inoculation Station.' Consequently, I, and not Dr. Guitéras, was responsible for Dr. Carroll's difficulties in getting blood from the patients at Las Animas. It happened that the group of yellow-fever cases which we had there at the time were exceptionally severe ones. I explained to Dr. Carroll that each of these patients was too ill to safely undergo the excitement and fright (not to speak of the depletion) incident to the abstraction of several ounces of his blood, as proposed. I consulted Dr. Guitéras, on account of his immense experience and extensive knowledge of yellow fever. He entirely concurred in my opinion. That it is peculiarly dangerous to subject seriously-ill yellow-fever patients to the slightest shock or disturbance has long been known.

"The vitally important facts that yellow fever is transmitted to man by the mosquito, and by inoculation of blood directly from yellow-fever patients, as well as the impossibility of transmitting it by fomites, had already been conclusively demonstrated.

"If Dr. Carroll had been in my place, and with my responsibility, I believe he would have acted as I did.

"JOHN W. ROSS,
"Medical Director U. S. Navy, Retired."

set-back arising from an act of officious disobedience on the part of an assistant. The final experiment in the investigation was to be made with serum passed through a Berkefeld filter by means of a force pump. This pump which had been brought by Carroll from New York, was tested by him on the very morning of the day it was to be used, and then put carefully away in a closet, to which no one else had access but his assistant. About seven o'clock in the evening, Carroll began his work, but no sooner had he made a few strokes with the pump than the filter was forced out of the flask, fell to the floor and broke, losing all the serum. On looking for the explanation of the mishap, it was found that the valve attachment of the pump had been reversed so that a positive instead of a negative pressure was obtained, with the result described. No one but the assistant had access to the closet in which the pump was kept, and this fact, together with others, left no doubt that this servant had taken the pump out to display it to visitors and reversed the valve in an over-weening confidence in his knowledge of its workings.

The letter in which Carroll described this incident to Reed was given me by Carroll for publication, but, when, on looking over the manuscript, he found that the delinquent's name was mentioned, he asked permission to erase it, saying that if there was any possibility of its doing the man an injury, he would not like to have it on his conscience.

In spite of all these vexatious hindrances the great work was at last completed. The experiments made during this last visit of Carroll's to Cuba established: (1) that the specific agent of yellow fever is present in the blood during at least the first, second, and third days of the disease; (2) that the specific agent is destroyed, or at any rate attenuated, by heating up to 55° C. for ten minutes; (3) that yellow fever can be produced by the injection of a small quantity of diluted serum taken directly from a patient and passed through a Berkefeld filter; and, finally (4) that as the specific germ is capable of passing through a Berkefeld filter, it must belong to that mysterious class of organisms, known as *ultra-microscopic*. It is only necessary to review these points to recognize their importance as additions indispensably necessary to complete our knowledge of the natural history of yellow fever. I call attention to them here in order to emphasize the fact that their establishment at that particular time is due, not only to Carroll's scientific knowledge and enthusiasm, but to his clearness of judgment and his determination not to be defeated in his purpose, no matter what obstacles lay in the way of fulfilment. No one has, as yet, seemed to appreciate how much we owe to Carroll in the completion of the last stages of this momentous work.

The report of these experiments was the final publication issued in the name of the Yellow Fever Commission, the members of which were now Reed and Carroll only. Dr. Carroll continued, however, from his home in the United States to disseminate the valuable information he had acquired, through the medium of a number of scientific papers, issued from time to time. The first of these on the "Treatment of Yellow Fever," which appeared in the *Journal* of the American Medical Association for July 19, 1902, was the first communication of any moment on the treatment of the disease since its mode of transmission had become known. It conveys a great deal of valuable information on the therapeutics of yellow fever. This article was followed by others appearing in periodicals at intervals up to about eighteen months ago, when the last appeared, entitled "Without Mosquitoes there can be no Yellow Fever," in *American Medicine* for March, 1906. The final contribution to the subject from Carroll's pen is the section on "Yellow Fever" in the second volume of Osler's "System of Medicine."

In regard to these publications I should like to mention a little incident which, I think, shows how truly retiring and modest was Carroll's disposition. When the Life of Walter Reed was in preparation, I wrote and asked him if he could send me any publications giving me general information as to the work of the Commission; in reply he sent me the reprints issued by the Commission, which were prepared by Reed as chairman. I then wrote again, asking whether he himself had not written upon the subject, when he sent me such of his own papers as had up to that time appeared. He made no allusion to them, however, until I made a direct inquiry. How many of us would have shown a like restraint?

Carroll says in a personal letter that the circumstances in his life of which he was especially proud was the fact that he was the first person to succumb to an attack of experimental yellow fever. He might justifiably have prided himself on the fact that he was the first person to volunteer for the experiment, but that way of looking at the matter would never have entered Carroll's mind.

Carroll's life, although he was English born, was typically American; of that dramatic order which is so often epitomized in the expression "from the tow-path to the White House." He was unconquered by the obstacles so thickly strewn in his path, and ever showed a persistence, which, if not a necessary element of genius, is at least an essential part of that most excellent quality which is its closest ally and may pardonably be mistaken for it.

Carroll, who has become one of our national heroes, in the brief span of thirty-three years rose from the dull level of the ranks of the army to unusual distinction as a scientist, with the title of major, and was one of the now immortal trio whose labors have conferred upon their country the most signal benefits which have ever yet accrued from any discovery or invention made within its borders. Great gains are often the fruits of the lavish outlay of wealth and time, with the conjoint labors of many of our countrymen, as in the case of the present Panama canal, but these heroes have conferred upon all men a boon of inestimable value, with but an insignificant outlay of money.

This great work, whose value it were invidious to estimate by money standards, has been done by these three men and by them alone, without any great expenditure of time, and has been handed over in a form so simple that a child, with a few

minutes' instruction, can at once reap its fullest benefits. Best of all, I think, is the fact that they were content with the virtue which is its own reward and sought no large emoluments nor posed as mighty heroes.

Lazear, Reed, Carroll, naming them in the order in which we have seen them leave us, by their joint labors, and with that simplicity which is ever the mark of the greatest work, have already saved our country countless lives, as well as millions in money, and in the foolish destruction of valuable property in misdirected efforts to check the march of the disease. The fabled burning of villages in China in order to gratify the craving for roast pig was the quintessence of wisdom as compared with the folly of burning up of clothing, bedding, and furniture, or the driving great steam screws into bales of rags in order to drive out yellow fever.

May we not also in our brief inventory of the signal blessings received at the hands of our heroes, include the release of the mind from the terrible apprehensions of an insidious, swift, and awful death, as well as from the brutal conduct often engendered by an epidemic of yellow fever, so vividly described by Carey, Rush, and Keating. This is the language with which several of the most distinguished men whom we have ever known in the ranks of our profession conclude a report made one hundred and ten years ago (see *Medical Repository*, 1797, vol. 1, p. 411).

Philadelphia, November 6, 1797.

In thus urging in regard to the domestic sources of the Yellow Fever, we are actuated by motives of magnitude far beyond those which determine ordinary questions of science. Though we feel the strongest conviction that the value of property, the increase of commerce, and the general prosperity of our city, will be eminently forwarded by the adoption of the foregoing propositions, yet these are but little objects in our view, when compared with the prevention of the immense mass of distress which never fails to accompany a mortal epidemic. We consider ourselves, moreover, as deciding upon a question which is to affect the lives and happiness, not only of the present inhabitants of Philadelphia, but of millions yet unborn in every part of the globe.

We are, with the greatest respect, Sir,

Your very humble servants,

BENJAMIN RUSH,
CHARLES CALDWELL,
WILLIAM DEWEES,
JOHN REDMAN COXE,
PHILIP SYNG PHYSICK, et al.

As in the middle ages, so in our own land, pandemonium and hell were let loose and held high carnival, with profligate industry robbing and murdering the sick and the dying, until in their orgies of lust the ghouls of the epidemic, in their turn, fell victims to the impartial scourge.

I cannot help reflecting, as I think upon the admirable simplicity of the results of the work of James Carroll and his colleagues, that it would have been appreciated more by their countrymen had it been necessary, in order to reap its benefits at each threatened epidemic, to post at intervals throughout our cities some great and costly engine emitting lurid sulphurous flames, casting a vast pall of offensive smoke over the protected neighborhood, and accompanied at frequent intervals by fearful, thunderous, nerve-racking detonations. Doubtless our cities would then vie with one another in their eagerness to erect monuments to the men who had succeeded in expelling so dreadful a disease in such an appalling manner, so satisfying to the supersaturated dramatic cravings of our theatre-going population.

I look abroad, by way of comparison, and ask what other lands are doing to honor their benefactors, and I see the inventor of a serum used to test the presence of tuberculosis compounding his nostrum in profound screcy; I see another compounding a diphtheria serum and impudently seeking to patent his claims in foreign countries while reaping a rich harvest of gold by his patents at home, thus ghoulishly feeding on the sick and dying. Yet both are richly rewarded and honored by their own countrymen. I turn my expectant eyes homeward and behold the three men who have completed a task of equal magnitude; one of them lays down his life, and the others quietly retire from the field amply rewarded by the consciousness that they have been permitted to serve their day and generation by stamping out a dreaded pestilence.

Carroll had the elements of success within him from the first, he was the typical *vir tenax propositi;* with innate power and rare skill and tact he discerned and delicately followed those clues which led him from the subaltern ranks of the army to the laboratory. Carroll's clues were those which present themselves to each one of us, beckoning us into new avenues and wider walks with better vistas daily presented but unrecognizable to the less keen perceptions of the average man. America has to-day many men of Carroll's caliber, but unfortunately the stewardship of great talents has too often been so prostituted to the coarse occupation of mere money getting and hoarding that the spiritual growth has been stunted and the great opportunity left unrecognized.

I remark also, not to praise my country but to lament the fact, that there are many of our young men with like talents who, lacking Carroll's energy and persistence, and needing the stimulus of encouragement to do great things, fall by the wayside, unable to surmount the obstacles which choke the way.

To-day, while the entire medical profession mourns Carroll's loss, our daily papers are filled with the eulogies of the numerous insignificant heroes of our common political life, and we, who by our contact with these devoted lives have been endowed with a clearer vision of the better things, feel keenly the shame that our whole country does not even know of; much less does she lament this our last great loss, although this is the critical time when she ought to be hastening to the house of mourning to ask what honors we may confer upon those heritors of his time whose lives were dearer to him than his own.

But what lessons do Carroll's and Reed's lives teach us of the medical profession? Not I think that we should at once set ourselves to strive to do great things, but rather that we should do well the daily task, and to strive after thoroughness in the commonplace events of our every day life, as the best preparation for the great opportunity if it presents itself.

Could Carroll send back a message to us who still live and toil, I am sure he would declare his life well spent did he but know that he had inspired any of his brethren to faithfulness in little things, and while not indifferent to the kindly sympathy of appreciative friends, to be yet serene and satisfied at the end with a consciousness of a duty well done, even though it won no plaudits from the world.

One who saw these things in their due proportions, and who understood as no man has ever done their relations to things eternal, once gave this encouragement and seal of approval to such, in the words: "Well done, good and faithful servant. Thou hast been faithful over a few things; I will set thee over many things: enter thou into the joy of thy Lord."

DR. WELCH:

Dr. Kelly has given you a picture of Dr. Carroll's professional life. But I recall well his first appearance in the laboratory. He had entered the army as a private soldier in the ranks and was then a hospital steward. Dr. Pilcher and Dr. Price, army surgeons, helped him to obtain a medical education, and he had just come from a course of lectures in New York City.

Dr. Reed was sent here in 1889 by the surgeon-general with instructions to attend the clinics, Dr. Osler's, Dr. Kelly's, and Dr. Halsted's, and to leave the laboratories alone. A not altogether wise surgeon-general. But later Dr. Sternberg became surgeon-general. Himself a pioneer in laboratory experimental work, he urged Reed to undertake the same.

I remember well the joy and inspiration with which Reed entered the laboratory and undertook the work. He seemed overcome with the opportunity afforded him. There was an unusual group of men working there then. Dr. Councilman was my first assistant. Dr. Flexner had just come. Dr. Lafleur, Dr. Thayer, Dr. Barker, I think, Dr. Abbot, and Dr. Nuttall were all there. A rather interesting family! And Reed was taken in and of course influenced by them all.

Here his bacteriological training was acquired; here he took the elementary courses. Afterwards he carried on work independently. It was during this period that Carroll came to assist him. He was still a hospital steward and so subordinate to Reed, helping him in making media, assisting in experiments, and doing the simpler things. His peculiar aptitude soon became evident, however, and he was allowed to take the regular courses.

This was his first introduction to Reed, and their association was later continued in work carried on in the Army Medical Museum in Washington.

Reed established his reputation as a creative investigator in bacteriology in a short time. While here he was interested in reproducing the focal necroses in the liver found in typhoid fever by injecting the typhoid bacilli into the vessels leading to the liver, and these lesions hitherto considered lymphomata were proven to be simply necroses. This was a very pretty piece of work. He also made a study of the diphtheria bacillus. And so when called to head the Commission he was recognized by all as qualified for the position.

Carroll was very intimate with Reed and his training and reputation were due to this association. They frequently came back here together to attend lectures, two or three times a week, and kept fully in touch with the research work going on in the laboratories.

It was from insight into his character that Reed was selected as leader of the Commission, but no one could have been found as a more efficient aid to Reed than Carroll. Lazear was the third member. Dearly loved here and a member of Dr. Osler's staff, he was more broadly educated clinically and pathologically than any other man upon the Commission. He was unusually well prepared for this work by having studied the mosquitoes and malaria with Dr. Thayer. Agramonte was an immune and a most useful member.

This unusual piece of scientific work before the Commission was accomplished by the most economical method. Dr. Sternberg had done all that could be accomplished with the known bacteriological methods to ferret out a specific organism as the cause of yellow fever. A commonplace experimenter would have pursued that line, and a sterile research would have resulted. There were a number of points of attack, only one of which, however, appealed to Reed as useful. That was the isolation of an organism from the stomach and intestines which would be agglutinated by the patient's blood.

The mosquito theory of yellow fever had been brought forth by Dr. Finlay in 1881, twenty years before. The work was discredited, and a special lack of credence was given it because of the discovery by Finlay of a micrococcus, a tetrad, as the specific organism. Finlay's attempts to demonstrate the rôle of the mosquito were in vain, and we now know the reason why. The blood of the patient contains the virus only during the first three days of the disease, and the mosquito is unable to transmit the virus until an incubation period of twelve to fourteen days is passed. But I think great credit is due Finlay for sticking to his theory through thick and thin. And I am glad the Liverpool School of Tropical Medicine has recognized Finlay, along with Gorgas and Theobald Smith, awarding them medals for their work in tropical medicine.

The Commission, I believe, shared in the popular lack of credence of the mosquito theory. But I know of no piece of work so well undertaken to get the answer from Nature. They first settled definitely that Sanarelli's *Bacillus icteroides* was not to be found constantly in the blood. The second question they took up was, Is the virus of yellow fever present in the blood? This involved experiments upon human beings with the virus of one of the most deadly diseases. Would you undertake it? I cannot say that I would. And yet it was not done rashly. The great responsibility was fully realized by Reed. Failure involving the death of some of the patients without throwing any light upon the disease would have made the experiments the subject of great reproach.

But it has been the greatest triumph of scientific medicine,

the means of saving thousands of lives. And the courage in those men to make that experiment is ever to be wondered at.

They determined that the virus was in the blood, and that during the first three days the blood would convey the disease by inoculation. Of course, the same is true of malaria, and this does not reveal the nature of the organism. Every student should read the original three articles. For clearness of presentation and absolutely convincing proof they are unexcelled.

Carroll was the most heroic in this work, as he was the first victim. Lazear performed the first experiment, but Carroll was the first to submit to the bite of a twelve-day mosquito. And his was the most severe attack of all. Fortunately no case died during these very carefully planned experiments of the Commission.

The Commission demonstrated:

1. The futility of Sanarelli's claims.
2. That the virus is in the blood.
3. That the virus is conveyed by the Stegomyia mosquito.
4. That the patient is a source for transmission only in the first three days of the disease.
5. That the virus must then undergo an incubation period in the mosquito of twelve to fourteen days.

I was perhaps the first to suggest to Reed the importance of testing the filtrate of the blood of a patient. Carroll was designated to carry out these experiments, important in placing the virus among the class of filtrable viruses. The working party sent out by the Pasteur Institute later confirmed this work.

Reed was the leader in fact and name, but Carroll was well trained for the work. A virile, manly, and courageous type, willing to sacrifice his life! The most heroic of all the members.

But Reed was no coward. He was ready to submit himself as a victim, and thought he ought to return and do so, even when it was unnecessary. But he was forbidden to do so by Gen. Sternberg, I think. Lazear also was a hero.

What a service to mankind! Is there anything comparable? Jenner's? Yes, I think so! The Commission proved that complete eradication from the face of the globe of the greatest and most dreaded pestilence that affects mankind is possible. A disease which in a single epidemic has caused the loss commercially of ten millions of dollars to such a city as New Orleans. And in the construction of the Panama Canal our country is demonstrating to the world the value of the Commission's work. It was an inestimable service to mankind.

One other matter. After such an unselfish life, Carroll has died, leaving a widow with seven children to educate, in needy circumstances. And I propose (and I am grateful to Dr. Cattell, the editor of *Science*, for the suggestion) that we make it the sentiment of this meeting to apply to the Carnegie Hero Fund for contribution for the support of Major Carroll's widow and children.

I know of no more deserving disposition of the fund, of no hero more worthy!

DR. THAYER:

'Tis sad indeed that, after so brief a period, we should meet again in this room to pay tribute to the memory of another of that little group of men who will always be remembered as the conquerors of a great pestilence.

That Lazear and Reed and Carroll, so young, so vigorous, so strong, should, one after another, be taken away in the midst of their careers, seems a strange and cruel stroke of fate. One is almost overwhelmed by the pity of it all—by the thought that after years of hard work—the deserved recognition by the government but just acquired—with the prospect of happy and honoured days with his growing family and his chosen work, Carroll, too, should have had to go.

And yet, despite one's self, the same feelings rise that have come to us all during the past few years, as we have thought of Lazear and Reed. How often do we measure the happiness and success of a man's life by the accident of his death![1] How often do we allow the sudden or tragical end of a noble and useful and happy career to overshadow in our minds the brightness of that which has gone before!

With all the tragedy of their untimely end these men have led happy and successful lives.

We go through life, each member of the human ant hill, buoyed up by our better and happier thoughts and aspirations and ambitions; each has in him the feeling that there is in this world something that he can do or say or write or inspire that is new or great or exalting. In our struggles—in our dreams, we seem almost to reach it. We cannot—we will not—we must not realize that the end can come before this something is accomplished. And so, reaching out, straining, too often, alas, groping for the elusive opportunity, we go our way, one after another, millions on millions. And the unexpressed thoughts and ambitions and aspirations die with us—futile except in so far as they have guided us to better lives. How few, how very few of us leave behind much more than the affectionate admiration and love of our immediate friends!

But these three men have left a lasting monument. They have accomplished a small part perhaps of what their generous hearts may have hoped—but that which has proved a great and blessed gift to mankind. They will never be forgotten and their example will stimulate hosts of men to more earnest effort.

Who shall say that these have not been enviable lives?

And what a fine example Carroll has left us! Born in the old country—our old country, England—a poor boy, he brought to us those qualities which we love to call English—honesty, simplicity, fearlessness, steadfastness of purpose. Working his own way, beginning his medical studies at an age when too many begin to abandon theirs, he helped to accomplish this great work.

[1] Maeterlinck: La sagesse et la destinée, Paris (Charpentier), 1899, 122.

A patient student, an earnest worker, an honest man; it fell to him and his fellows to make one of the great discoveries of the age. And now, alas, as if jealous fate had decreed that this work were enough for one life-time, he has joined his two colleagues in bidding farewell to the joys and the sorrows, the ambitions and the disappointments, the hopes and the fears of this world.

But when we think of what these, our friends, have done, in the midst of our sorrow there rises a sense of exultation and pride—for who of us would not change his lot for theirs!

SURG.-GEN. STERNBERG, of Washington, D. C.:

There is little left for me to say. I admire Reed, Carroll, and Lazear as you do. And after these comprehensive accounts it is hardly worth while for me to dwell upon Carroll's career.

I think it remarkable that he should work up from a private soldier in the ranks to a position where he is named a major by a special act of Congress. When I named him as a member of the Commission he was known as a trained bacteriologist, an honest and faithful worker. Reed was the leader. But Carroll was his second and capable of independent work.

When Reed came back to Washington, somewhat discouraged, he received a letter from Carroll, saying, "I have taken my mosquito." Two days later came a telegram saying Carroll was sick with yellow fever.

I myself doubted the mosquito theory, but did believe in some intermediate host. I urged experiments with the blood. In fact, I had done one myself in Vera Cruz. I had tried in vain to find a susceptible animal, and knew the experiment must be done upon a human being. I was able then to inoculate a non-immune with blood from a patient in the eighth day of the disease. There was no result, and I made up my mind I needed blood earlier in the disease.

The incubation in the body of the mosquito was probably Reed's idea. And work along that line caused the first success—Carroll's case.

Carroll searched for the specific germ described by the Marine Hospital service and found it a yeast.

Agramonte was a Cuban physician, employed by the New York Board of Health as bacteriologist. He was desirable on that account and because he was an immune. So I had him made a contract surgeon and sent him to Reed and Carroll. He had been made familiar with Sanarelli's bacillus and his search in autopsies and blood cultures fairly settled that question.

The laboratory work was done mainly by Carroll and important additions were made by his individual work.

DR. H. H. DONNALLY, of Washington, D. C.:

As a student in the Medical Department of George Washington University I came to know and admire Walter Reed and James Carroll, for both of whom all of the students had the highest respect. The emphasis laid by Dr. W. W. Johnston upon the importance of their courses to us as medical students, was the beginning of my respect for Reed and Carroll, which grew by contact with them in the laboratory.

Reed lectured to us, and model lectures they were, while after the lecture Carroll went around the room from student to student, and patiently demonstrated our specimens under the microscope. Each man received his personal attention, too, although often it was necessary to wait for it well beyond the scheduled hours, as Carroll continued as long as the men waited. More than once has he said, "I like to help the men who are interested in their work, and encourage them." We always got a good demonstration from Carroll, for he was practical, thorough, patient, and kindly.

One understands Dr. Carroll better when one bears in mind that he was a military man, and that of the nearly thirty-four years of his service he spent a number of years as a private and non-commissioned officer in the regular army before entering the hospital corps and finally becoming a medical officer. It has seemed to me that I could trace his point of view upon various matters to the influence upon his mind of this army environment. He always showed much sympathy for the plodder, the student who might be compared to the private in the army. Again, he was most respectful of authority and obedient to those who were his official superiors, being careful not to criticise or express an adverse opinion of them.

Carroll was a good man, and square,—a man of his word. He had an abiding sense of justice, and a strong faith that truth must prevail in time. It was not uncommon to hear him say, "That's all right, you just wait." He was as genuinely modest a man as one could find, usually allowing his rights to lapse, rather than be what to him was self-assertive. He never lost sight of the fact that he was the head of his family, and felt keenly the responsibility of making his efforts count for their sakes. This was the motive power back of his work, and whatever else may have been in his mind, this was prominently there when he deliberately submitted to the bite of the infected mosquito. He reasoned that whichever way it turned out for him, they would eventually be the gainers.

And now one can understand why he lived for five years silently plodding along, yet expectantly looking for material recognition of his work and services to the race—namely, his inordinate modesty combined with a strong belief in right and future justice. About a year ago a stronger quality slowly aroused him to a change in his attitude, and this was his sense of duty to his family. For himself he could wait and work, spending a long full day, often into the night, in the Army Medical Museum, and three evenings a week in the laboratory of the Medical School, gaining an income sufficient to survive upon, but inadequate to his needs. His obligations as father and husband, however, gradually overcame his modesty enough for him to let some of his friends know what apparently few men had previously understood: his real part in the work of the Yellow Fever Commission.

All that he said and more was easily susceptible of discovery from authentic publications and living witnesses. His friends

in Washington and elsewhere, when they realized the truth, took up the matter and saw to it that the facts of his service became generally known. It has been a very short time since Congress meted out more adequate recognition in a material way, two universities (Maryland and Nebraska) conferred honorary degrees upon him, scientific bodies to which he belonged honored him with offices, and more selective scientific bodies admitted him to their membership.

DR. KING, of Washington, D. C.:

I feel very grateful to Dr. Kelly for his kind invitation to attend the meeting to-night, with the purpose of which I sympathize most heartily. I am doubly grateful for the privilege of making a few remarks expressive of my own personal respect for the memory of my former colleague, Dr. Carroll.

You may be gratified to learn that the Medical Faculty of the George Washington University at Washington, in which Carroll was Professor of Bacteriology, some weeks ago placed on record a suitable tribute of respect to the memory of Dr. Carroll; and the Medical Society of the District of Columbia, after its summer holiday, appointed a committee for the same purpose, which will shortly present its report.

It is well known to most of us that the medical and secular press throughout the country (and perhaps the world) have expressed a most enthusiastic appreciation of the heroic career of Dr. Carroll in his humane endeavor to extend the boundaries of medical knowledge in such a manner as to secure to the American people immunity from the dreadful pestilence of yellow fever.

And, still again, the eloquent words of the gentlemen who have preceded me, have, I think, struck the chords of our hearts, as the fingers of a musician strike the strings of his instrument, and have elicited from the deepest recesses of our hearts a responsive thrill of sympathy, respect, and sorrow. What more can I say? Nevertheless, if you will allow me, I should like during the five minutes allotted to me to elaborate and emphasize one idea which has already been referred to by a previous speaker.

Has the American government and have the American people sufficiently realized the actual value (in dollars and cents, if you will) of the demonstration that yellow fever can be prevented by protection from the bite of infected mosquitoes? And if this valuation has been fairly estimated, let me farther ask, have the men who risked their lives to make this demonstration been at all adequately rewarded?

Are republics ungrateful? Certainly ours is not. Our pension roll emphatically contradicts such a supposition. A few years ago, one of our annual pension appropriations was *more than double* the annual expenditure for pensions of four European governments combined, namely, France, Germany, Great Britain, and Austria-Hungary. Our own government has not only been lavishly generous in its distribution of pensions, but it has been (we must confess) prodigally extravagant. It is tacitly admitted that more men are receiving pensions for gallantry during our recent Spanish war than were ever enrolled in Shafter's Army.

Now if it be true that "the very walls have ears," I think the white marble blocks of the Capitol at Washington should blush to witness the annual distribution of millions of money to satisfy the hungry demands of undeserving pensioners, fraudulent contractors, land frauds, post-office graft, and a hundred others, while the widows and children of our sleeping medical heroes, who risked their lives to secure to the American people immunity from pestilence and plague remain without adquate means of support appropriate for the station of life in which God has placed them.

About one-third of a century ago, and therefore still fresh in the memory of some of us older physicians, occurred those dreadful epidemics of yellow fever, which almost depopulated the cities of Shreveport, La., and Memphis, Tenn. To-day we feel perfectly confident that the curtain has fallen for the last time upon these dismal dramas. We remain serenely secure in the assurance that the beams of the rising sun will never recall such tragedies again.

Now if it had been possible during the prevalence of those epidemics to purchase the means of immunity from future similar invasions, at what figure do you think the survivors of their dead would have estimated the value of such a secure immunity? Not by hundreds or thousands of dollars, but surely by millions!

I firmly believe, if the government of the United States should take from its Treasury a solid hundred thousand dollars and present it to the widow of Dr. James Carroll, a similar share to the widow of Walter Reed, and perhaps still another to your own distinguished dead, Dr. Jesse W. Lazear, it would be doing an act that the whole American people would commend and the entire world would applaud.

It has been said that medical officers of the army working on the Yellow Fever Commission, were acting under orders from the War Department, as soldiers are ordered to fall in line for battle. But no authority in the government can order a soldier to inoculate his own body with a dangerous infection, even though it were for the benefit of a suffering world.

If Dr. Carroll were acting under orders it must have been in obedience to the command, "Thou shalt love thy neighbor as thyself and do to others as you would they should do unto you,"—a mandate that does not have the ring of an order by a Department of War.

We have to-night, figuratively speaking, strewn over the grave of the lamented Carroll, a few last roses of summer and we have watered them with tears of sympathy for his family, but of what avail are these flowers in providing the means of life—food, raiment, shelter, education, and recreation—for his bereaved family? If it were possible for material things and easy conditions of life to "pluck from the memory a rooted sorrow" I wish we could hasten the day when the sorrows of the survivors of the man we honor to-night, might, partially at least, be turned into joy just as "drops of water rolling down the cheek of anguish reappear in the rainbow" (Draper) that beautiful emblem of hope.

Dr. Ruffin, of Washington, D. C.:

Certainly Carroll accomplished a great deal in a short time in his life. Very few appreciate the difficulties he encountered. His preliminary education was very slight. He finished his studies at the age of fifteen, and was in Canada on his own resources, penniless and without a helping hand. He worked in lumber camps at ninety cents a day. His course, after entering the army in 1874, has already been reviewed.

His rise from a private was a great achievement. Dr. Sternberg's heart was important in James Carroll's life. He discovered James Carroll! He was his faithful friend. It was Sternberg's influence which brought Carroll to Ft. McHenry, putting the study of medicine in his grasp—his ambition for many years.

The findings of the board are a brilliant achievement. And the courage in exposing himself to the bite of the mosquito has no parallel upon the battlefield. His claim to fame is on the yellow fever work. From 1899 until his death he published twenty-seven articles on this subject. As Professor of Bacteriology in the George Washington University, he was respected by the faculty and literally loved by the students. There was a bond of sympathy of great advantage to both.

In 1902 he was made an assistant surgeon in the army as a reward for his work. Then followed a long period of waiting, hope, and despair. Finally, the justly deserved reward came in his promotion to the rank of major, in March, 1907. The recognition was a great delight to him. In his last days honors were crowded upon him, among them degrees of LL. D. by two universities.

He died as he lived a pure, high-minded, courageous man.

Dr. Cushing:

The lives of these three men many times heard in this room will still be recounted when the names of most here are forgotten.

Dr. Munroe, of Washington, D. C.:

The death of James Carroll, M. D., Surgeon and Major U. S. Army, on September 16, 1907, inflicted a very serious loss upon the George Washington University, and brought sorrow to the hearts of his many associates in the faculties of that institution, with which he had maintained an active connection for some twelve years.

He was appointed a demonstrator in the Medical School of the George Washington (then Columbian) University in 1895 under the supervision of Dr. Walter Reed, Surgeon U. S. Army, who was then and for many years, Professor of Pathology and Bacteriology in this Medical School. In 1903, Dr. Carroll was promoted to Associate Professor of Bacteriology and Pathology, and appointed to succeed Professor Reed, as Pathologist to the University Hospital. In 1905, he was promoted to a full professorship in the Department of Medicine, and also given supervision over the students pursuing researches in bacteriology under the supervision of the Faculty of Graduate Studies.

Professor Carroll's connection with the University included the period during which the University Hospital was created and set in operation, and the new Medical School building, which is well adapted to its intended purposes, was built. Dr. De Schweinitz, Dean of the Medical School, relied much upon the judgment, special knowledge and experience of Dr. Carroll in planning the building; and the excellent bateriological laboratory with which the Department of Medicine is now provided, was largely due to Dr. Carroll's advice and active supervision.

Throughout his connection with the Department of Medicine, Dr. Carroll was a most devoted and assiduous teacher. Kindly in spirit, tolerant in views, in sympathy with youth, lucid in exposition, earnest in manner, a master of his subject and skilled in its technique, he commanded the respect and esteem of his students and compelled, by force of character and restrained enthusiasm, an interest in the subject taught.

When Dr. Carroll became connected with the Medical School the entire course of instruction in this, as in all other professional schools in Washington, was given after office hours and late into the evening, in order to accommodate, not only the many students who were employed in the various departments of the United States Government, but also the eminent specialists who were willing to assist in the promotion of medical education. During his connection, owing to criticism on this method of procedure, the entire plan has been changed, a growing nucleus of professors giving their whole time to the conduct of the school has been formed, with practitioners and specialists grouped about them; the instruction is begun in the early forenoon and continued throughout the day and the plan made to conform to the most approved examples. Throughout this work of reorganization, Dr. Carroll gave able assistance and so adapted the work in his topic and selected his assistants with such excellent judgment that the students continued to benefit by his talents and knowledge, and to be subject to his beneficent influence.

In faculty meetings, as in his teachings and his scientific work, he held to strict standards and high ideals, but while expressing his views with definiteness and maintaining his position with firmness, he manifested a willingness to listen and to be convinced. He differed from his associates without acrimony and accepted an adverse decision without cherishing resentment. In fact, his entire relations were characterized by a determined gentleness and thoughtful consideration.

Dr. Carroll was without doubt ambitious; but his ambition consisted in the indestructible desire to do well everything that he was called upon to do. Whatever work he was engaged upon no matter what might be its extent or importance, he could never be content with doing less than his best. The same lofty purpose and the same careful judgment were applied to all he did, in small things as in great things. No man of his high character and just discernment could be free from likes and dislikes; but no man ever took more care to avoid injuring by word or deed those who failed to win his esteem or regard. Free from malice and prejudice; calm and dispassionate in

judgment; even in temper; kindly and amiable in manner he kept on good terms with those about him. But the trait in his character which perhaps most forcibly impressed those who came in contact wth him was his absolute straightforwardness and reliability. He was utterly without subterfuge or reservation. He was a man in whom you felt implicit confidence. There was therefore no man in the faculties who commanded more universal respect and regard than James Carroll; and none have died more universally regretted.

DR. J. O. SKINNER, of Columbia Hospital, Washington, D. C., who was unable to be present, sent an interesting paper from which the following extracts are made:

When Hospital Steward, William Grant, U. S. Army, first met James Carroll—then 1st sergeant of Company C, 7th U. S. Infantry at Fort Snelling, Minn., where they both were stationed in 1882—he seemed to recognize in Carroll the material suitable for higher and better work than that in which he was then engaged, and suggested to him the idea of studying for the position of Hospital Steward, U. S. Army, and offered to place at his disposal certain opportunities which were then and there available for the purpose. This was a vitalizing stroke on the part of Grant, and a vital moment in the life of our lamented friend, for he promptly took advantage of the offer and made such good use of it that in the summer of 1883, he was examined by the late Major W. C. Spencer, Medical Corps, U. S. Army, passed an excellent examination and was appointed Hospital Steward, U. S. Army, September 15, 1883. Previous to this systematic and successful effort on his part, Carroll had, no doubt, rather indefinite and uncertain ideas of how to work, although he was ready and anxious to do *something* to better himself and his fellowman.

We find his duties in the capacity of hospital steward carrying him to different stations in the Department of Dakota, including the post of Fort Custer, Mont., where he came under the observation and command of Capt. James E. Pilcher, Medical Corps, U. S. Army, now retired, who further encouraged and assisted him in his chosen field of work. From Fort Custer, Montana, he took a leave of absence the latter part of 1886, and proceeded to New York City and began the study of medicine at the University of the City of New York during the season 1886-7. On completion of his leave of absence, and the close of the session, he returned to the Department of the Platte, where he was on duty from September, 1886, to February, 1889, when he was ordered for duty to Fort McHenry, Maryland, where that efficient officer and estimable gentleman, himself a Marylander by birth, Capt. C. B. Byrne, Medical Corps, U. S. Army, was post-surgeon. Again was Carroll most fortunate in the environment of this detail since Capt. Byrne (now Colonel Byrne of the Medical Corps, and on duty in the Philippines) belonged to that appreciative class of officers always ready and willing to further the wishes and promote the interests of good and worthy men.

What might have been expected really occurred for Carroll graduated in medicine from the University of Maryland in 1891, and took his post-graduate course in pathology the same year, and in bacteriology the following one (1892) at the Johns Hopkins Hospital. The seed which had been sown in Fort Snelling, Minn., 10 years previously had now grown into a promising plant!

During the World's Fair at Chicago, Illinois, 1893, we find him there assisting Capt. L. A. Le Garde, Medical Corps, U. S. Army, himself an eminent and efficient bacteriologist as well as an accomplished surgeon, in the work for which he was specially selected by the surgeon-general of the army. At Chicago and elsewhere he had demonstrated so well his fitness for certain kinds of experimental work that General Geo. M. Sternberg, then Surgeon-General, U. S. Army, had him assigned to duty at the Army Medical Museum, Washington, D. C., where he remained on duty—engaged in scientific pursuits—until detailed for duty in Cuba in connection with that great and glorious work of investigating the cause or causes of yellow fever by the late and greatly lamented Col. Walter Reed, Medical Corps, U. S. Army, and his able and self-sacrificing associates, Dr. Carroll's status having been changed in the meantime (1898) to that of acting assistant surgeon, U. S. Army, which latter position he continued to hold until appointed first lieutenant, assistant surgeon, in the Medical Corps of the Army, Oct. 21, 1902.

Since that time the character of his work, the manner in which it has been done, the results of the investigating board of which Reed, as president, was the guiding spirit, and Carroll as an associate, a most conscientious and capable cooperator, are too well known to the scientific, medical, ethical, and commercial worlds to repeat here and now.

This, then, is a brief—a very brief—review of the services and record of Major Carroll's life as it is known to those familiar with the more important events of the history of their country, and with the men who have assisted in making that history, but there is a personal and private element in the services and sacrifices of the subject of these remarks which cannot, should not, and must not, be forgotten or ignored. John Boyle O'Reilly once wrote that

The greatest happiness we can ever know—even the milk of humanity—comes not from love, but from sacrifice.

The Sanarelli theory of the cause (*Bacillus icteroides*) of yellow fever had, by substantial proof to the contrary, been eliminated from further consideration by the Reed board; the mosquito theory of Finlay was now to be tested practically, and this theory the members of the board had, from their observations and investigations, good reasons for believing to be the correct one. In becoming an anxious candidate for the demonstration of this theory in which he had great confidence was not then Carroll's greatest happiness in thus risking and, if necessary, in sacrificing his own life in order that thousands of others might be saved by the result of the experiment? But this was only a part of the sacrifice—and to every manly mind the minor part; the little flock of loved and loving ones he had left behind—they who bade him farewell so tearfully and saw him leave so sorrowfully—were a part—a major part

of the sacrifice he might have to make to prove his case, for was he not their only protector and provider against the vicissitudes of life? There is not a better rule to guide or govern us than the golden rule, and in a modified way it is applicable in this instance. Had any one of *you* been situated as he was, what would have been *your* reflections and resolutions? Ask yourselves, for this is a question that only your courage and conscience can answer. Physical courage, it is alleged by those of observation and experience, is not so rare as some suppose, and it is frequently made less so by the excitement usually incident to the testing of it and also probably by a *gaudium certaminis* more or less natural to every healthy mind and body; but moral courage is, indeed, a rara avis under all conditions and circumstances. Was it not this latter kind of courage combined with the former—this great moral duty to mankind when the opportunity came to Carroll to perform it—which prompted him to take this desperate risk of surrendering not only his own life, but also, *pro bono publico*, the guardianship of his dear and devoted family?

The spirit and determination which actuated him in this matter is well described in a resolution adopted by the American Public Health Association at its annual meeting, September 30 to October 4, 1907, at Atlantic City, and which reads as follows:

Resolved, That this Association recognizes in the death of Major James Carroll, of the Medical Department of the United States Army, not merely the loss of an intelligent and efficient working bacteriologist from among its members, but the departure from this life of a rare hero who with deliberate courage accepted the very serious risk of demonstrating in his own person that theory of the transmission of yellow fever, whose proof has made possible the control, by prevention, of that disease. When Dr. Carroll volunteered to make in this way a vital test of Walter Reed's experimentation and reasoning and thus to assist in establishing its truth, he intelligently accepted a risk greater than that of battles and of far more importance in its consequence to the world than would be the sacrifice of any individual active warrior. He took part in a conflict whose outcome, thanks to his courage and that of his companions, has given the world practical immunity from one of its greatest scourges.

Resolved, That this Association shall present to the War Department of the United States, through the Surgeon-General of the Army, this appreciation not only of Major Carroll's heroic conduct, but of the value of his service to the people whom the Association represents; and also that it presents to his family its acute sympathy in this bereavement tempered only by the conviction that his memory will be held in respectful esteem as long as the history of preventive medicine shall be a part of the record of the progress of the race.

During Major Carroll's fatal illness in this city, heroic traits of character were beautifully illustrated by the dauntless spirit and constant cheerfulness with which he always confronted the grim specter of his increasing debility, and approaching dissolution. His face was always wreathed in smiles when every one knew his heart must have been laden with sighs and bathed in tears—

> "For the test of the heart is trouble
> And it always comes with the years,
> And the smile that is worth the praises of earth
> Is the smile that shines through tears."

Not once did he hesitate or falter. Day after day he lay on what he must have well known, was his death bed, without a murmur of despair, a word of reproach, or an expression of regret except his inability to be active and useful. He seemed to feel he had fought a good fight; he had finished his course; he had kept the faith.

We are attempting now and here to commemorate, in a fitting manner, the virtues and worth of our departed friend, but should not something be attempted in consideration for his grief-stricken widow left without his solace and support; some tangible comfort; some material assistance, by which with the increased burden of her cares and responsibilities she may, in a measure at least, be relieved? In what way and by whom shall this be done?

THE MATERNAL MORTALITY IN THE FIRST 5000 OBSTETRICAL CASES AT THE JOHNS HOPKINS HOSPITAL.

By Francis C. Goldsborough, M. D.,

Instructor in Obstetrics, The Johns Hopkins University.

(*From the Obstetrical Department of the Johns Hopkins Hospital and University.*)

The advance of medical science in modern times is apparent to everyone who pays even slight attention to the current publications, but that this knowledge can be applied so as to be a more efficacious means of preventing death is sometimes doubted. It must be granted that a great part of the contributions to medical literature, whether from the laboratory or the clinic, have no immediate practical value. Nevertheless, every fact which is added to our knowledge of the body, or to a better acquaintance with the varied influence of our environment upon health, will ultimately increase the practitioner's ability to combat sickness and death. The art of medicine will sooner or later follow every progressive step taken by the science of medicine.

However, we are not dependent upon theoretical considerations for our confidence in the present-day improvement in medical practice. In obstetrics the improved results are most strikingly manifested in connection with puerperal infection. Only a little more than fifty years have elapsed since death from this cause alone occurred in ten out of every hundred women delivered in the large European hospitals while at

present the maternal mortality from this cause has been reduced to between 1/5 and 1/10 of one per cent in many well conducted Lying-in Institutions.

At the suggestion of Dr. Williams I have reviewed the records of the first 5000 cases in the Obstetrical Department of the Johns Hopkins Hospital for the purpose of determining the maternal mortality, as well as the relative seriousness of the various complications which occurred in this series of cases.

It should be understood that the temptation "to correct" our statistics has been avoided. Every death occuring in the service for the period covered by the statistics has been included, although in some instances the fatality was attributable to intercurrent affections and in no wise to the obstetrical condition of the patient. These number 55, and in consequence the total maternal mortality for the series is 1.1 per cent. For the sake of completeness, I append abstracts of the fatal cases at the end of the article.

The Obstetrical Department of the Johns Hopkins Hospital embraces two services; namely, the Outpatient Service, in which the patients are attended at their homes, and the House Service, comprising the cases which are treated in the hospital. The first is somewhat larger, so that my statistics include 2750 out-door and 2250 house patients. Whenever possible, abnormal or complicated cases occurring in the outside service are brought into the hospital. This explains the preponderance of fatalities among the hospital cases, among whom 48 out of the 55 deaths occurred.

Of the 5000 cases, there were 4631 (92.62 per cent) delivered at term, while 369 (7.38 per cent) failed to progress so far; roughly speaking, a proportion of twelve to one. On the other hand, when the 55 fatal cases are considered from the same point of view, we find that the number of maternal deaths after the delivery of mature children is actually only three times greater than that obtaining among the comparatively small number of women who had not advanced to term. Thus, there were 41 deaths, or 74.54% of all fatalities, in women delivered at term; 12 deaths, or 21.81% of all fatalities, in women delivered prematurely; 2 deaths, or 3.64% of all fatalities, in women undelivered and premature.

In other words, there was a mortality of 0.89% in the former as compared with one of 3.79% in the latter group.

The significant difference between a mortality of 0.89% after delivery at term and 3.79% after premature delivery may be in great part accounted for by the more frequent occurrence of infection in cases of abortion, a point which can be discussed more appropriately in a later paragraph. Yet, in addition to this, it must be remembered that toxæmias, as well as excessive bleeding in pregnancy due to placental abnormalities, occasion in themselves, or through the operative measures which they necessitate, a number of fatalities before the completion of full term.

For further study of our 55 fatal cases it is convenient to classify them according to the cause of death. This is not altogether satisfactory, since in certain instances more than one serious condition was present and consequently it is difficult to determine which of them played the greater part in the production of the fatal issue. Thus, in some of the eclamptic cases virulent infections were also noted, and in others cervical lacerations of an extreme degree, either of which may have superseded the toxæmia as the actual cause of death. On the whole, however, it is most satisfactory to divide the cases as follows:

Group I. Infections.
" II. Toxæmias.
" III. Hæmorrhages.
" IV. All others.

GROUP I. INFECTIONS.

We find here the most frequent cause of death, the group including 21 cases, or 38.18% of the entire series. From this it follows that in the 5000 cases the gross mortality from infections was 0.42%.

Of the twenty-one patients, sixteen died in the hospital and five in their homes while being cared for by the Outpatient Service; nine being operative, and six spontaneous full term deliveries, together with six abortions. One case of pyelitis is included in this group in which a spontaneous miscarriage occurred. The autopsy revealed a general pyæmia. While the death was not due to puerperal infection strictly speaking, it is most conveniently grouped here.

The relation of operative procedures to obstetrical infection, as illustrated by these statistics, is instructive. Of the 5000 cases under consideration, 655 were operative, a percentage of 13.1, with a mortality from infection of 1.37%; as compared with 0.1% in the patients who were delivered spontaneously at term. The nine fatally infected operative cases include:

Symphyseotomy (the only one in the series)	1
Craniotomy on dead child (infected before seen)	2
Cæsarean section (pelvic dystocia)	2
Manual removal of placenta	2
Forceps and removal of placenta	1
Accouchement forcé (eclampsia)	1

As far as could be determined from the clinical history and the autopsy findings, the cause of death in the foregoing nine cases was peritonitis in six, pyæmia in four, pulmonary embolism in one, and endocarditis in one.

A word of comment is merited by the relatively frequent history of abortion among the fatal cases of infection, almost one-third of the infections having followed this condition. In each of the six instances the patient was already infected on admission to the service, as was demonstrated by the routine intra-uterine culture, which is taken in all suspected cases before any treatment is instituted. It is not unlikely that most or all of the abortions were the result of criminal procedures, undertaken without regard to aseptic precautions; as the experience in this clinic with therapeutic abortions, indicates that the latter operation, if properly performed, is not attended by any greater risk of infection than in delivery at term.

The responsibility for the 21 fatal infections in our statistics may be fairly placed as follows. In twelve instances positive evidence of infection was present when the patients were first seen by a member of the department. In another case the patient admitted having had coitus at the onset of labor, sixteen hours before the birth of the child, and the infection seemed to be definitely attributable to the former event, since no vaginal examinations were made during labor. In two other instances it is impossible to fix the responsibility for the infection, since the patients had been examined by individuals with defective technique before they were sent to the hospital. In the remaining six cases the department is wholly responsible for the development of the infection—one-eighth of one per cent.

The instances in which the department had exclusive care of the patients included—

(a) *One Symphyseotomy.*—Here the incision became infected and subsequently the pelvic veins. Death occurred suddenly on the ninth day of the puerperium. A pulmonary embolus was suspected clinically, but could not be demonstrated at autopsy.

(b) *Two Cæsarean Sections.*—The first of these was performed in the patient's home amid very dirty surroundings. Infection of the abdominal incision resulted in a fatal general pyæmia. The second patient was operated upon at the hospital, after a single vaginal examination. Laparotomy was done after the patient had been in the second stage of labor between two and three hours, when the temperature was above normal and the pulse rapid. Symptoms of peritonitis developed on the third day, and death resulted from an intestinal obstruction.

(c) *One case* from which the *placenta* was *removed manually* died from infection with *B. ærogenes capsulatus.*

(d) *Two cases delivered spontaneously* in the Outpatient Service died of septicæmia. Each was examined by vagina twice.

The first of the two cases, in which it is unlikely that infection occurred at the hands of the department, had been under the care of a midwife for some hours previous to entering the hospital. She was ultimately delivered by accouchement forcé. Death occurred on the eleventh day of the puerperium. The second patient, likewise, had been examined vaginally by a midwife without due regard to cleanliness. She was delivered by an easy low forceps operation, after which it was necessary to remove the placenta manually.

An analysis of the bacteriological findings in the various cases showed that the infecting micro-organism was in seven cases pure streptococcus; in one case a streptococcus and *B. coli communis;* in one case a streptococcus, *M. gonorrhœæ* and *B. ærogenes capsulatus;* in one case a streptococcus and *B. ærogenes capsulatus,* and in two cases *B. ærogenes capsulatus* alone. In one patient admitted on the twenty-third day of the puerperium, the uterine culture was sterile, but the patient died the following day of ulcerative endocarditis. In eight cases I was unable to obtain any record of the bacteria concerned.

Group II. Toxæmias.

The more thorough appreciation of the importance of asepsis at the time of delivery has so reduced the mortality from puerperal infection that it is at present only a slightly more important cause of death in obstetrical practice than metabolic disturbances. In the 5000 cases under consideration there were 16 deaths from the various toxæmias of pregnancy—more than one-fourth of the total number. These can be best considered according to their pathology, and include fatalities from eclampsia, nephritis and toxæmic vomiting.

Eclampsia was the most frequent form of toxæmia met with in this series. The 12 cases under this head represent a total mortality of 0.24%, and constitute 22% of all the fatal cases.

During the period covered by these statistics there were 48 cases of eclampsia treated by the department, which may be classified as follows: Antepartum, 27 cases (56.25%); intrapartum, 7 cases (14.58%); postpartum, 14 cases (29.17%); total, 48; with 8, 2, and 2 deaths in the several groups, respectively. Therefore, the mortality in this clinic from the disease in question is 25%. Its varying seriousness in each group is represented by a percentage of 29.63, 28.57, and 14.29, respectively.

One-half of the fatalities from eclampsia occurred within 12 hours after admission to the hospital and the patients were in extremis at that time. With the remaining six, death occurred in two after 18 hours, in one after 36 hours, and in the others on the 4th, 7th and 8th days. Case No. 571, in which death was clearly due to puerperal infection on the 11th day is not fairly included among the fatal cases of eclampsia.

In two of the fatal cases (Nos. 909 and 1722) the diagnosis rested entirely upon the autopsy findings. Clinically, they escaped recognition, since convulsions were entirely absent during the course of the disease. The pathological picture in each, however, was that characteristic of eclampsia. These cases have recently been described in detail by Slemons in his article upon eclampsia without convulsions.

Nephritis.—It is generally conceded that nephritis may give rise to intoxications during pregnancy independent of its association with eclampsia. Two such cases terminated fatally in this clinic. In one the post-mortem findings clearly demonstrated the nature of the toxæmia; while in the other, although no autopsy was allowed, the history and the clinical picture would permit no other diagnosis.

The first of these (Case No. 9) could not have been distinguished from eclampsia clinically. The well-known premonitory symptoms had been observed. A convulsion occurred during labor and was followed by coma. The patient partially recovered from this, but remained semi-conscious for a number of days, and died one month after delivery. At the autopsy no lesions were found in the liver, but the kidneys were the seat of marked interstitial changes, demonstrating a chronic nephritis as the cause of her toxæmia.

The other patient (Case No. 198) presented symptoms of threatened eclampsia, such as headache and albuminuria with

casts. She was delivered on account of the evidences of a profound toxæmia, but failed to improve subsequently. Death occurred on the 18th day of the puerperium, the patient having been in a semi-stupor most of the time since delivery. Although an autopsy was not permitted, the marked clinical similarity with the case just cited indicates that the two should be classed together.

TOXÆMIC VOMITING.—Two fatal cases of vomiting of pregnancy appear in this series and bear a striking clinical resemblance to each other. In each instance the uterus was emptied in the third month of pregnancy, and in each death occurred at the end of 48 hours.

Case No. 650 occurred before the association of a central liver necrosis with these cases had been pointed out. The autopsy note only states that fatty degeneration was present and makes no comment on its localization. Case No. 2116, which is described in detail in Dr. Williams' Monograph upon vomiting of pregnancy, exhibited clinically a very high percentage of nitrogen eliminated as ammonia, but unfortunately an autopsy was not allowed. -

GROUP III. HÆMORRHAGE.

There were eight deaths in the 5000 cases attributable to excessive loss of blood, a mortality of 0.16%. Viewed from the total number of deaths in the series, of which they constitute 14.54%, these fatalities demonstrate the importance of hæmorrhage as a cause of death in obstetrical practice. The figures show it to rank third in this connection, being preceded only by infection and toxæmia.

The anatomical basis for the excessive loss of blood was most frequently placenta prævia, which was present in precisely one-half of the cases that died from hæmorrhage. This abnormality was observed in 13 of the 5000 cases, a mortality of 30.8%.

The great danger of death from hæmorrhage in placenta prævia depends primarily upon the location of the placenta, and this in itself may give rise to such an acute loss of blood as to cost the patient her life before treatment can be instituted. Thus, in two of our cases the exsanguination was so extreme on admission to the hospital that death was practically simultaneous with their entrance into the ward. Similarly in the third case, although the patient lived for two hours after admission, death could be ascribed only to the profound anæmia occasioned by the bleeding before and during delivery, and was not attributable to traumatism of the birth canal.

It is important to remember, however, that in many cases of placenta prævia death may result from complications incident to its treatment, and of these none is more potent than deep lacerations of the cervix and lower uterine segment. This is illustrated in our fourth case, in which the sequence of events was as follows. The patient was sent into the hospital at the eighth month of pregnancy with a history of bleeding. While a vaginal examination was being made to determine its cause, a profuse hæmorrhage resulted from the introduction of one finger into the cervical canal, which was found to be dilated to approximately 2 cm. with the internal os entirely covered by the placenta. It, therefore, seemed expedient to deliver the patient at once and accordingly the cervix was dilated manually without the least difficulty, the placenta perforated and the child extracted by the breech. There was only a normal loss of blood after the completion of delivery, but two hours later the patient suddenly collapsed and died before any treatment could be instituted. The autopsy disclosed a relatively slight laceration of the cervix, and a large subperitoneal hæmatoma resulting from an incomplete rupture of the lower uterine segment which involved one of the branches of the uterine artery.

It is probable that a better result would have been obtained by the use of a slower method for dilating the cervix; and in this clinic experience has led to the use of the Champetier de Ribes' balloon in such cases whenever possible. As the cervix is usually softened and sometimes partially dilated in this class of cases, rapid manual dilatation might appear to be the operation of choice, except for the fact that the consistence of the cervix under these circumstances renders it more liable to deep laceration than usual. Accouchement forcé should be avoided whenever possible.

The danger of this procedure is likewise demonstrated in another of our deaths from hæmorrhage. This occurred in a patient suffering from chronic nephritis who was delivered by accouchement forcé. Following the operation a cervical laceration was noted and repaired, and the uterus and vagina were packed with sterile gauze. The patient left the operating room in good condition, but died very suddenly four hours later, with some external hæmorrhage and a large subperitoneal hæmatoma.

In one instance (Case No. 2201) death from hæmorrhage was associated with complete rupture of the uterus. The patient was admitted in a state of shock, prolonged attempts at extraction of the child having been made before the physicians in attendance decided to send the case into the hospital. On examination it was found that the child had been expelled into the abdominal cavity, with the exception of the feet and legs, which remained within the lower uterine segment. Tentative, but unsuccessful, traction was made upon the most accessible lower extremity in order to determine the possibility of delivering the child through the rent in the lower uterine segment, and the patient died before a laparotomy could be performed.

Case No. 1548 died from hæmorrhage in the course of a Cæsarean section, rendered necessary by a contracted pelvis. As the previous labor had been terminated by Cæsarean section, a hysterectomy was determined upon on this occasion. Profuse bleeding had occurred during the delivery of the child and continued. Following the amputation of the uterus there was such unusual hæmorrhage from the cervical stump that death occurred before it could be controlled.

Fatal hæmorrhage on the fourth day of the puerperium occurred in Case No. 1370 of the Outpatient Service, which

was reported by Bettman. The autopsy showed an incomplete rupture of the lower uterine segment which had been brought about by the impaction in the pelvic cavity of the hypertrophied non-pregnant horn of a bicornuate uterus.

Group IV. All Other Causes.

It is necessary to place together in a miscellaneous group 10 of the 55 fatal cases in this series, since they do not readily fall into either of the previous groups. The fatal complications in this division are frequently not strictly obstetrical, yet they are purposely included in this list, as it is desired to account for every death in the 5000 cases.

Intestinal obstruction has been found at operation or autopsy in three cases without any other obvious cause of death. In two instances it represented a postoperative complication of Cæsarean section. Case No. 1256 died on the third day after an enterostomy had been performed. At the operation there was no sign of peritonitis and the high degree of intestinal distension could be accounted for only by a blocking of the gut by unusual numbers of round worms. In Case No. 2158, likewise a Cæsarean section, the obstruction was due to adherence of a loop of the small intestine to the abdominal incision. The adhesions were freed at a secondary operation, but death ensued.

The third instance of intestinal obstruction occurred independently of a previous laparotomy. This patient was delivered per vias naturales and the morning after the operation was apparently in good condition. During the day marked abdominal distension developed, the pulse became very rapid and respiration labored. Death occurred suddenly 28 hours after delivery. The clinical diagnosis was "cardiac failure," but the autopsy revealed definite intestinal obstruction. At the left cornu of the uterus the gut was firmly held by an old adhesion. The change in size of the uterus consequent upon the termination of labor had brought about a kink in the gut and an obliteration of its lumen. The unusual distension of the abdomen compressed the thorax, thus accounting for the labored respiration and probably explaining the sudden cessation of the heart beat, since a myocarditis was present.

Intercurrent Medical Diseases were accountable for three deaths.

Typhoid fever developed in one patient about two weeks before term. She was delivered spontaneously after a very short labor, but slowly became worse and died on the twenty-first day of the puerperium. Typical lesions were found at autopsy.

Pneumonia complicated with chronic heart disease caused the death of another woman at the eighth month of pregnancy. Labor had not supervened and she died within 24 hours after entering the hospital.

The third death from a purely medical complication occurred in a woman at the fifth month of pregnancy, suffering from amœbic dysentery. She fell into labor and was delivered spontaneously. Death occurred two days later.

Thrombosis of the left common iliac vein occurred in one patient who had worn a tight bandage about her abdomen throughout pregnancy for the purpose of concealing her condition. The binder had also been effective in producing intestinal paralysis and thrombosis of the left common iliac vein. She was admitted to the ward with unmistakable signs of obstruction. On this account labor was induced and death followed 12 hours after delivery. At autopsy an embolism was sought for, but none could be found. I reported this case in detail in the Bulletin of the Johns Hopkins Hospital for June, 1904.

Embolism of the pulmonary artery was the cause of death in Case No. 962. This patient was delivered by low forceps. Shortly after the completion of labor her temperature was 101.2°, but quickly fell to normal and subsequently did not rise above 100.4°. No abnormality was noted in the puerperium until the 12th day, when the patient suddenly complained of pain in her chest and difficulty in breathing while the breasts were being massaged. Death occurred two hours later. The autopsy revealed a cystitis associated with thrombosed veins in the pelvis, which had been the source of the embolus which had lodged in the pulmonary artery.

Exophthalmic Goitre was the only apparent cause of death in Case No. 2181. The patient was at term and probably in labor on admission to the hospital, although she complained only of dyspnœa. About six hours later pains began and the child was born within an hour. Immediately after its expulsion she collapsed and did not rally.

Anæsthesia would seem to be accountable for but a single death in the 5000 cases, and in this instance ether was employed. The patient was a very fat woman, weighing more than 300 pounds. Operative interference was rendered necessary by the impaction of a breech presentation and death occurred during the extraction of the child. At autopsy no pathological lesion was demonstrable.

Ether was administered on account of the corpulence of the patient, as it was believed that it would be safer under the prevailing circumstances than chloroform which is used in this clinic almost without exception.

It is indeed notable that we have had no fatality from chloroform in these 5000 cases, although it is given as a matter of routine to every patient at the end of the second stage of labor and to the point of complete anæsthesia when the vulva is fully distended. Moreover it is employed in all operative deliveries, except occasionally in certain cases of Cæsarean section. Its relative safety in obstetrical practice is too well known to need more extended comment, although the endorsement afforded by this series of cases very well merits mention.

ABSTRACT OF HISTORIES.

Group I. Infections—21 Cases.

1. *House No. 261.* Symphysiotomy for contracted pelvis. Infection of incision and pelvic veins. Patient died suddenly a few minutes after dressing the vaginal wound, apparently of embolism, but this was not found at autopsy. *Autopsy No. 1139.* Necrosis and gangrene of wound. Extravasation of blood in pelvic fascia. Acute splenic tumor. Hypostatic congestion of lungs.

2. *House No. 372.* Patient admitted in consequence of a neglected brow presentation, having been under the care of a midwife and doctors who had attempted delivery. Examination showed a prolapsed cord and dead child. Delivery by craniotomy. Cultures taken at the time of operation showed pure streptococcus. Patient developed vesico-vaginal fistula, phlegmasia alba dolens, and ran a typical course of infection. She died suddenly of pulmonary embolism on the 27th day of the puerperium after the vaginal wound had been dressed. *Autopsy No. 1304.* Vesico-vaginal fistula resulting from pressure necrosis during labor. Pseudomembranous endometritis. White thrombosis of vesical veins, internal and common iliac veins, and of vena cava. Emboli in right pulmonary artery and pulmonary trunk, projecting into left pulmonary artery. Perforation of uterus. Localized peritonitis.

3. *House No. 571.* Eclampsia at six months. The patient had been examined several times before admission by a midwife and doctors. Cervical dilatation was begun by Champetier de Ribes balloon and completed by the Harris manual method. Patient ran a typical course of infection and died on the 11th day. *Autopsy No. 1484.* Endo- and parametritis. Septicæmia. Metastatic lung abscesses.

4. *House No. 582.* Patient admitted on the 23d day of the puerperium. Died the following day of ulcerative endocarditis. *Autopsy No. 1487.* Acute vegetative and ulcerative endocarditis, aortic, tricupsid, and pulmonary valves.

5. *House No. 921.* Patient was admitted when six months' pregnant. Had been sick with chills and fever for two weeks before admission. Had miscarriage several days after admission. Manual removal of placenta. Died three days later. *Autopsy No. 1763.* Pyonephrosis. Multiple pyæmic abscesses. General infection.

6. *House No. 1300.* Spontaneous delivery 11 days before admission. Attended by midwife. Death three days after admission from septicæmia. No autopsy.

7. *House No. 1311.* Patient admitted with infected abortion. Uterus cleaned out. Died on the 10th day of puerperium of peritonitis. *Autopsy No. 2024.* Abscess of left ovary. General fibro-purulent peritonitis. Fibro-purulent pleuritis, right. Metastatic abscesses in lung.

8. *House No. 1373.* Spontaneous delivery six days before admission. Attended by an outside doctor. Patient had general peritonitis on admission and died three days later. Laparotomy and enterostomy for distension. No autopsy.

9. *House No. 1531.* Patient admitted with infected abortion. Temperature became normal in about six days. Convalescence uneventful. On examination on the 16th day was found to be in good condition, but for small pelvic mass. Discharged. Returned two days later with general peritonitis. Operated upon, but died next day. No autopsy.

10. *House No. 1611.* Cæsarean section for contracted pelvis. Examined once. Symptoms of peritonitis developed on the third day, which were clearing up, when patient developed intestinal obstruction and died. *Autopsy No. 2209.* Infection of uterine wall with necrosis and abscess formation. General peritonitis.

11. *House No. 1700.* Delivered by the outpatient department. Two examinations with the usual technique. Child born half an hour after examinations. Three days later patient developed chills and fever. Died on the 16th day of the puerperium. *Autopsy No. 2236.* Puerperal infection of uterus. Infected thrombus of left ovarian vein. Localized peritonitis. Purulent arthritis of knees.

12. *House No. 1702.* Admitted with infected incomplete abortion. Died on the 18th day of pyæmia. *Autopsy No. 2260.* Thrombosis of vena cava, left common iliac vein, external and internal iliac, femoral and saphenous veins. Partial thrombosis of right common iliac vein. Embolic abscess in lung.

13. *House No. 1765.* Spontaneous delivery, attended by midwife. Admitted on the 15th day of puerperium for general septicæmia. Died next day. No autopsy.

14. *House No. 2052.* Patient was delivered by the outpatient department, but was not examined vaginally. Had had coitus at the onset of labor 16 hours before delivery. Developed infection and died of general peritonitis on the seventh day of the puerperium. *Autopsy No. 2457.* Infected puerperal uterus with multiple abscesses and gangrene of uterine wall. Acute fibro-purulent peritonitis.

15. *House No. 2103.* Admitted 12 days after an abortion. Septicæmia. Died six days later. No autopsy.

16. *House No. 2212.* Miscarriage. Manual removal of placenta by midwife. Admitted several days later for general peritonitis. Died 24 hours after admission. *Autopsy No. 2564.* Acute fibro-purulent peritonitis.

17. *Outpatient Department No. 56.* Physometra when seen. Delivered by craniotomy. Died on the third day from an infection with *B. ærogenes capsulatus* and streptococcus. No autopsy.

18. *Outpatient Department No. 210.* Patient had been examined several times by a midwife before department was called. Delivered by low forceps. Manual removal of placenta. Rupture of bicornute uterus. Patient refused to come to hospital for operation and died of peritonitis. *Autopsy.* General peritonitis and rupture of bicornute uterus.

19. *Outpatient Department No. 1221.* Spontaneous labor. Two examinations with the usual technique. Normal puerperium until the fifth day, when the temperature suddenly rose to 105° and the patient died 12 hours later. No autopsy.

20. *Outpatient Department No. 1574.* Child delivered normally. Manual removal of placenta. Patient died on the fourth day. Infection with *B. ærogenes capsulatus.* No autopsy.

21. *Outpatient Department No. 935.* Patient delivered by Cæsarean section in her home amid extremely dirty surroundings. The incision became infected and the patient died of pyæmia. No autopsy.

GROUP II. TOXÆMIAS—16 CASES.

(*A*) *Eclampsia—12 Cases.*

1. *House No. 27.* Patient admitted in deep coma, after having had 11 convulsions. The convulsions continued for 24 hours after delivery; the patient remained in deep coma and died on the fifth day. *Autopsy No. 912.* Acute and chronic nephritis. Acute degeneration, necroses and hæmorrhages in liver.

2. *House No. 322.* Patient had slight premonitory symptoms of eclampsia. Easy and spontaneous labor. First convulsion three hours after delivery. Seven convulsions in 18 hours. She then improved somewhat, but later passed into a semicomatose condition and died on the eighth day of the puerperium. *Autopsy No. 1218.* Acute parenchymatous nephritis. Multiple foci of necrosis in liver. Œdema of lungs.

3. *House No. 496.* Admitted with symptoms suggesting toxæmia of pregnancy. She was put upon treatment and the condition improved. Patient awakened one night complaining of intense headache. Shortly afterwards she had a convulsion. Delivery by accouchement forcé. Condition improved for several days, then began to grow worse. She passed into a semicomatose condition and died on the seventh day. No autopsy.

4. *House No. 787.* Eclampsia gravidarum. The patient had had several convulsions and was in deep coma on admission. Accouchement forcé. There were no convulsions after delivery, but the deep coma continued and death occurred eight hours after admission. *Autopsy No. 1637.* Acute nephritis, with fatty degeneration. Focal necrosis in liver about portal spaces. General œdema.

5. *House No. 795.* Profoundly comatose patient admitted in labor, with a history of having had three convulsions. She was delivered at once, but remained in coma and died six hours later. No autopsy.

6. *House No. 909.* Patient delivered spontaneously by the outpatient department, and had "several fits." She was seen at once and found to be in deep coma. She was brought to the hospital, but failed to regain consciousness or to respond to treatment and died two hours later. *Autopsy No. 1749.* Chronic nephritis. Hæmorrhages into the liver. Œdema of lungs.

7. *House No. 1176.* Eclampsia gravidarum. The patient had had two convulsions and was in deep coma on admission. She was delivered immediately. The convulsions continued throughout the night, followed by coma. Patient died 11 hours after admission. *Autopsy No. 1921.* Cloudy swelling of kidneys. Focal necrosis and hæmorrhage in liver. Œdema of lungs. Bronchitis and bronchopneumonia.

8. *House No. 1177.* The patient had slight symptoms of toxæmia on admission, but these cleared up under treatment and there were no further symptoms. During the second stage of labor a single convulsion occurred, followed by deep coma. Death in four hours. *Autopsy No. 1984.* Slight chronic interstitial nephritis and parenchymatous degeneration of liver. General anæmia.

9. *House No. 1243.* Eclampsia gravidarum. Patient admitted in deep coma, after having had four convulsions and having been delivered. She had four convulsions after admission, remained in deep coma, and died in 36 hours. No autopsy.

10. *House No. 1625.* Eclampsia gravidarum. The patient had had 11 convulsions, and was in deep coma when seen. She died three hours after admission. No autopsy.

11. *House No. 1722.* Patient admitted in deep coma at the eighth month of pregnancy, with the history of headache and œdema of legs. A few hours before admission she complained of severe headache and a few minutes later went into coma. There were no convulsions. This is a case of eclampsia without convulsions. *Autopsy No. 2265.* Pregnancy eight months. General œdema. Slight parenchymatous nephritis. Focal necroses and hæmorrhages in liver.

12. *Outpatient Department No. 442.* The patient was seen in deep coma by the outpatient department four hours after the child was born. There had been many convulsions before delivery. The family was urged to allow the patient to be taken to the hospital, but they refused. The patient then had several slight convulsions, remained in coma, and died 16 hours later. No autopsy.

(*B*) *Nephritis—2 Cases.*

1. *House No. 9.* Admitted in semicomatose condition. Urine showed traces of albumin, hyaline, and granular casts. On treatment, condition improved somewhat. Labor set in on the eighth day after admission. Second stage ended with forceps on account of uræmic symptoms. Patient remained in semicomatose condition and was taken home on the 32d day of the puerperium. Died 12 hours later. *Autopsy No. 483.* Chronic diffuse nephritis. Slight fatty degeneration of liver. No peripheral necrosis in liver.

2. *House No. 198.* Patient admitted with intense headache. This continued and patient seemed irrational at times. Delivery by accouchement forcé. Patient gradually became semiconscious and died 18th day after admission without convulsions. This is classed as a case of chronic nephritis. No autopsy.

(*C*) *Vomiting—2 Cases.*

1. *House No. 650.* Patient had been vomiting incessantly for three weeks before admission. Was then three months' pregnant. On admission her condition was bad. Pulse 120 to minute, general condition poor. Therapeutic abortion was done. The next day she became delirious and later went into coma. She died 48 hours after the uterus was emptied. *Autopsy No. 1551.* Fatty liver. Endometritis and puerperal uterus.

2. *House No. 2116.* Pernicious vomiting. The patient began to vomit when six weeks' pregnant and had been vomiting almost constantly for one month. High ammonia coefficient. Therapeutic abortion was done, but the patient continued to vomit and died two days later. No autopsy.

Group III. Hæmorrhage—8 Cases.

1. *House No. 460.* Patient was admitted with a history of having had profuse hæmorrhage the day before from placenta prævia. Her condition was extremely poor. Pulse varied from 150 to 170. Was delivered at once, with very little additional hæmorrhage, but died at the end of the operation. *Autopsy No. 1389.* Slight tear of cervix. Anæmia of viscera.

2. *House No. 694.* The patient had been in labor for over two days before admission. Numerous attempts made to deliver her, but these were unsuccessful, because of the generally contracted rachitic pelvis. There had been considerable bleeding from a lateral placenta prævia. Condition poor, pulse 150 and of poor quality. Examination showed a prolapsed cord and a dead child. Craniotomy. The patient did not bleed during the operation, but died a few minutes later. No autopsy.

3. *House No. 866.* Patient had been bleeding for 24 hours before being seen. The blood had soaked through the mattress and 700 or 800 cc. of clots were in the bed. She was brought at once to the hospital, in very poor condition, and delivered. There was very little hæmorrhage afterwards, but she failed to respond to stimulants and died several hours after admission. *Autopsy No. 1715.* Cervical laceration. Anæmia of all organs.

4. *House No. 1126.* Patient suffering from toxæmia. Delivered by accouchement forcé. She lost a large amount of blood during the operation, had a deep cervical tear and incomplete rupture of the uterus. This was sewed up and the uterus packed with gauze. Condition improved for a while after the operation, but then suddenly grew much worse; patient began to bleed and died while preparations were being made to control the hæmorrhage. In this case death was undoubtedly hastened by treatment. No autopsy.

5. *House No. 1297.* Placenta prævia. The patient was in good condition at the beginning of the operation. She was delivered by accouchement forcé. Rupture of lower uterine segment and excessive hæmorrhage. The patient died of hæmorrhage 12 hours after operation. *Autopsy No. 2004.* Rupture of lower uterine segment, cervix, and vagina, but not extending into peritoneal cavity. Hæmorrhage into periuterine tissues and uterus.

6. *House No. 1548.* Cæsarean section for contracted pelvis. The patient bled profusely while the child was being removed. The bleeding continued during the removal of the uterus and could not be controlled. Patient died from shock at the end of the operation. *Autopsy No. 2176.* General anæmia of organs. Congestion and œdema of lungs.

7. *Outpatient Department No. 1370.* The patient was delivered by breech extraction. The puerperium was normal until the third day, when the patient got out of bed and had a hæmorrhage. She notified the hospital. Her condition when seen was fair, with no bleeding. She was seen later in the day and there was no further hæmorrhage. The patient was strongly advised to enter hospital, but refused. On the morning of the fourth day she again got out of bed and hæmorrhage immediately began. When seen she was in extremis and died a few minutes later. *Autopsy No. 1704.* Bicornute uterus. Vaginal septum. Rupture of uterus and vagina extending into adjoining tissue. Slight subperitoneal and retroperitoneal hæmorrhage. Anæmia of tissues.

8. *House No. 2201.* The patient was sent to the hospital after several attempts to deliver her by two doctors at her home. Her condition on admission was very poor, the pulse being rapid and weak. The patient was very fat and an abdominal examination was unsatisfactory. Vaginal examination showed rupture through the posterior wall of the uterus. A foot of the child could be grasped and an attempt was made to extract it. This proved difficult and the patient died during the attempt. *Autopsy No. 2552.* Rupture of uterus. Hæmorrhage.

GROUP IV. MISCELLANEOUS—10 CASES.

1. *House No. 962.* The patient was delivered by low forceps. The temperature immediately after the operation was 101.6°, but it fell to normal in a few hours, and never went above 100.4° afterwards; pulse normal. The puerperium was considered normal in every way. Suddenly, on the 12th day of the puerperium, while the patient's breast was being massaged, she complained of pain in the side and difficulty in breathing. She died nine hours later from pulmonary embolism. *Autopsy No. 1801.* Thrombosis of vesical veins. Occlusion of external iliac veins. Embolism of pulmonary artery and conus arteriosus.

2. *House No. 1040.* The patient was extremely fat, weighing over 300 pounds. During the second stage of labor, she showed signs of beginning exhaustion, the pulse becoming rapid and poor in quality. She was anæsthetized with ether and delivered by an easy breech extraction. The patient collapsed at the end of the operation and died. This case is classed as due to "cardiac failure." *Autopsy No. 1850.* Chronic tuberculosis of lungs, with acute localized miliary tuberculosis. Extreme obesity. Considerable remains of thymus gland.

3. *House No. 1240.* The patient had been ill for one month before admission. She had a spontaneous easy labor five days later. Two days afterwards she died of amœbic dysentery. *Autopsy No. 1977.* Ulcerative colitis (amœbic). General fibro-purulent peritonitis. Fatty degeneration of heart, liver, and kidneys. Œdema and hypostatic congestion of lungs.

4. *House No. 1256.* Cæsarean section for contracted pelvis. The patient took anæsthesia poorly and was much shocked by the operation. There was marked abdominal distension and the bowels could not be made to move. The abdomen was opened, but there were no signs of peritonitis and no definite obstruction. The small intestine was greatly distended. Many round worms could be felt in the intestines. An enterostomy was done and several round worms removed. Some gas was passed. The patient was much shocked and died a few hours later, apparently of intestinal paralysis. No autopsy.

5. *House No. 1294.* The patient, eight months' pregnant, was admitted with broken cardiac compensation and pneumonia. Patient died the next day without going into labor. No autopsy.

6. *House No. 1499.* Throughout pregnancy the patient had worn an extremely tight abdominal binding to conceal her condition. She was admitted suffering from nausea and vomiting and swelling of left leg. Her bowels had not moved for six days before admission. There was extreme œdema of the left leg. Labor was induced and delivery completed by version and extraction. The patient died 10 hours later, apparently of shock. *Autopsy No. 2121.* Thrombosis of left common iliac vein. Œdema of lungs. Arteriosclerosis.

7. *House No. 1662.* Patient had fever for nine days before delivery. Spontaneous and easy labor. Died on the 21st day of the puerperium from typhoid fever. *Autopsy No. 2252.* Healing typhoid ulcers in small intestine. Œdema and atalectasis of lungs. Bronchopneumonia. Acute spleen tumor.

8. *House No. 2158.* Cæsarean section for contracted pelvis. The patient developed intestinal obstruction from a loop of gut becoming adherent to the abdominal incision. A second operation was done and the loop freed, but the patient did not rally. *Autopsy No. 2566.* Operation wound. Laparotomy. Meteorism. Slight localized fibrinous peritonitis. Rachitic changes in bones of pelvis, legs, and ribs.

9. *House No. 2181.* Patient at term admitted to the ward in the afternoon with extreme dyspnœa, which had existed for four days. Had marked exophthalmos, enlarged thyroid, and rapid pulse. She was put to bed and seemed fairly comfortable, until about 11 p. m., when labor pains began. The child was born one hour later, apparently with a very easy labor. Immediately afterwards, before the placenta was delivered, the patient collapsed and died almost instantly. No autopsy.

10. *House No. 2229.* The patient was delivered by an extremely difficult version and extraction. The difficulty was due to a generally contracted pelvis. The morning after the operation the patient's condition was quite good, but for some abdominal distension. This increased during the day and the bowels could not be moved. Suddenly the patient became dyspnœic and the pulse became very poor and irregular. The patient died in about half an hour, 36 hours after delivery. *Autopsy No. 2587.* A loop of gut was adherent to the left horn of the uterus, and the change in the size of the uterus after delivery had caused an acute kink. Cardiac dilatation and hypertrophy. Fibrous myocarditis.

SUMMARY.

1. There were 55 maternal deaths in the 5000 cases, representing a gross mortality of 1.1%.

2. The fatalities are divided into the following groups:

Etiology.	Number of Deaths.	Gross Mortality.	Proportion of all Deaths.
I. Infections	21	0.42%	38.18%
II. Toxæmias	16	0.32%	29.09%
III. Hæmorrhages	8	0.16%	14.54%
IV. Miscellaneous	10	0.20%	18.18%

3. In Group I, 12 cases were infected before admission to the department. One patient had coitus during labor and was not examined by vagina. In two others midwives had made repeated vaginal examinations. Thus, six cases remain in which the department was responsible for the fatal infection, representing a mortality of one-eighth of one per cent.

4. In Group II there were 16 deaths, divided as follows: Eclampsia, 12; nephritis, 2; toxæmic vomiting of pregnancy, 2. The mortality from Eclampsia was 25%, which should be considered very favorable in view of the fact that the majority of the cases were admitted in coma.

5. In Group III there were eight deaths. Four of these were due to placenta prævia, and in three of them the patient was moribund on admission. In the fourth case death resulted from incomplete rupture of the uterus due to manual dilatation of the cervix. The dangers incident to accouchment forcé in this condition make it less preferable than the employment of a slower method of cervical dilatation such as the inflated rubber bag.

The remaining four deaths from hæmorrhage were associated with rupture of the uterus in three cases and with Porro Cæsarean section once.

6. In Group IV there were 10 deaths, distributed as follows:

Intestinal obstruction	3	Thrombosis	1
Typhoid fever	1	Embolism	1
Pneumonia	1	Exophthalmic goitre	1
Amœbic dysentery	1	Anæsthesia	1

NOTES ON NEW BOOKS.

A Text-Book of Obstetrics. By BARTON COOKE HIRST, M. D., Professor of Obstetrics in the University of Pennsylvania, etc. 5th edition. (*Philadelphia and London: W B. Saunders Company, 1906.*)

The author has had an unusually large experience in practical obstetrics and it is this material which supplies the basis of his book. Much of the text is taken up with a consideration of his own cases and many of the illustrations are photographs from them. The conclusions which he has reached from his clinical observations relative to causation and treatment are often at variance with modern opinion. Thus, his advocacy of the doctrine of maternal impressions is quite out of sympathy with the established facts of embryology.

In general, the teaching presented in this edition is unaltered from that of its predecessors. Eclampsia is still considered amenable to veratrum viride. Puerperal infection is said to call for first of all a thorough but careful curettage of the uterus. The Bossi dilator is recommended as a safe instrument where immediate delivery is required in the presence of an unyielding cervix. All these are measures in some dispute yet with the weight of authority opposed to the advice given in this volume.

The more recent advances in obstetrics are slightingly treated or positively condemned. Vaginal cæsarean section is thought to have an extremely limited field of usefulness, and pubiotomy none at all. No progress is admitted relative to our knowledge of toxæmia during pregnancy. The contributions of Breus and Kolisko to the pathology of the rachitic pelvis receive no mention.

So far as one may judge from the opinions expressed by the author, this branch of medicine has seen no advance since the appearance of his last edition.

The Technique of Vagino-Peritoneal Operations. By E. WERTHEIM and TH. MICHOLITSCH. Translated into English by CUTHBERT LOCKYER. With 138 illustrations. (*London: Macmillan & Co., Limited, 1907.*)

In German clinics the vaginal route for pelvic operations is employed much more frequently than it is in America. The Germans have developed this method of operating for pelvic disease and are thoroughly familiar with its technique and its possibilities. In their hands the operations are safe and satisfactory. It would be well for American surgeons to become more familiar with the technique of the vagino-peritoneal route. For this purpose no better book could be obtained than that published a year ago by Prof. Wertheim and Dr. Micholitsch and now translated into English by Cuthbert Lockyer. There is but little text—just enough to give an outline of the technique and an accurate description of the plates which illustrate the different steps in the various pelvic operations. The plates, which are full page and made from actual photographs, are clear and need but little description.

The book is intended for the surgeon who is beginning to do pelvic operations by the vaginal route, and the plates illustrate clearly the fundamental principles in this work, without going into the details which the surgeon is supposed to know. The book should be received well by American surgeons and prove a great help in simplifying pelvic work.

Gynecology and Abdominal Surgery. Edited by HOWARD A. KELLY, M. D., F. R. C. S. (Hon. Edin.), and CHARLES P. NOBLE, M. D. Volume I. (*Philadelphia and London: W. B. Saunders Company, 1907.*)

The publication of a comprehensive work which includes both Gynecology and Abdominal Surgery, two subjects which have become closely related to and dependent upon each other, especially in the last few years, surely must meet with the approval of the general surgeon and progressive gynecologist alike.

"Gynecology and Abdominal Surgery," in two volumes, edited by Dr. Kelly and Dr. Noble, the first volume of which has lately appeared, is, if one may judge from a review of this volume, a broad, comprehensive presentation of these two subjects.

Volume I is devoted entirely to gynecology, and the different subjects are presented by men who are leaders in gynecological work in this country. Each division of gynecological work has been treated in the fullest possible manner, thereby making the book acceptable not only to the student but to the practitioner and surgeon also. It is hardly necessary to review the separate chapters in detail, a glance at their authorship being sufficient guarantee of the thoroughness and quality of their contents.

Especial mention may be made, however, of the chapters on Bacteriology and Pathology. It is a great satisfaction at last to have a book which contains a thorough and scientific presentation of the Bacteriology and Pathology of gynecological diseases. These two chapters are excellent and will commend themselves to every student. The chapter on Pathology is an especially comprehensive and clear presentation of that most important and necessary branch of Gynecology.

Chapter 4 is a treatise on Medical Gynecology, intended chiefly for the general practitioner. The treatment of pelvic disease has become to such a large extent operative that the caution contained in this chapter against too much operating is a necessary one. Some of the treatments advised, however, are rather antiquated, and if carried out by a practitioner with but little skill and still further disregard of antiseptic precautions, would be the cause of much serious trouble. This is especially true of intrauterine applications, electricity, tampons, etc.

The illustrations are excellent throughout, clear and truly illustrative of the text. Mr. Brödel's and Mr. Becker's work is well known and stands for the highest in art as applied to medicine.

The volume is well indexed. The bibliography is not an important feature, but such a work scarcely calls for an extended bibliography.

The appearance of the second volume, on abdominal surgery, will complete a most valuable work on regional surgery.

A Manual of the Practice of Medicine, Prepared Especially for Students. By A. A. STEVENS, A. M., M. D., Professor of Therapeutics and Clinical Medicine in the Woman's Medical College of Pennsylvania, etc. 8th edition, revised. Illustrated. (*Philadelphia and London: W. B. Saunders Company, 1907.*)

The sixth edition of this book was reviewed in the BULLETIN in 1904. The present edition has been thoroughly revised and enlarged, and the section on diseases of the nervous system has been rewritten. The work of compressing the essentials of the practice of medicine into a volume of less than 600 medium-sized pages has been difficult, but there has been no sacrifice of clearness of description. It is, however, valuable chiefly as a manual for students about to pass examinations, rather than as a treatise on medicine.

The Consumptive Working Man—What Can Sanatoria Do For Him? By NOEL DEAN BARDSWELL, M. D., M. R. C. P., F. R. S. (Edin.), Medical Superintendent King Edward VII Sanatorium. 202 pages. (*London: The Scientific Press Limited, 1906.*)

No book which has recently appeared upon the subject of sanatorium care of the working classes deserves a wider reading, a more careful consideration, than this little one of Dr. Bardswell. The question has often been raised, are the conditions of

life of the poor such that it is economical for the state or the community to spend their money in the endeavor to cure men and women whose home surroundings, employment, income, etc., are so unfavorable to the attainment of perfect and continued cures?

In other words, did the sanatorium after the expenditure of all its energies merely effect temporary relief for working men who, on return to their homes and to wage-earning employments, were so likely to suffer a relapse of their disease that the original expenditure was unprofitable from the side of pure economies? In this consideration all calls of philanthropy are necessarily left out of account. It is to the answer of this question, so important in its bearing when states, municipalities, or communities are appealed to for support of sanatoria that Dr. Bardswell devotes his pages.

In order to make his study complete and convincing he undertakes the full investigation of but a limited number of cases, yet this investigation is so thorough, so comprehensive, so typical of what would be expected however many cases were considered, that the conclusions seem to bear the weight of full authority. Moreover, these conclusions, compared statistically with much larger reports, are found to stand relatively correct. We should, therefore, consider his answer as final and satisfactory, viz., that with all forces at our command working together in harmony, there can be no doubt that it is profitable to undertake the sanatorium care of incipient cases of tuberculosis among the working classes with the expectation that such a proportion of them will be permanently cured that the value to the state of the lives saved much more than overbalances the expenditure made. But to insure these results the co-operating forces above alluded to must be present and effective; means of early diagnosis, such as is provided by tuberculosis dispensaries, means of providing for families in the absence of its head, such aid as is furnished by charity organization workers or relief associations, committees for the after-care of consumptives, finding suitable employment, etc., and the establishment of farm colonies where those not wholly fitted at once to return to former employment may be given work under the most favorable conditions.

Aside from the economic value of the sanatorium, Dr. Bardswell very aptly refers briefly to its philanthropic value, quoting Sir Douglas Powell, "we must remember that relief of symptomatic suffering is one of the highest functions of such institutions."

The volume is small, well printed, easily read, and I recommend it thoroughly to all sanatorium managers for its inspiration and valuable suggestions, and to all others interested in providing relief to suffering consumptives for its hopefulness and assistance.

H. B. J.

A Text-Book of Physiology for Medical Students and Physicians. By WILLIAM H. HOWELL, PH. D., M. D., LL. D., Professor of Physiology in the Johns Hopkins University, Baltimore. Second edition, thoroughly revised. (*Philadelphia and London: W. B. Saunders Company, 1907.*)

Dr. Welch remarked some years ago that it had been his experience if a physician was found chasing some will-of-the-wisp it was almost invariably one whose knowledge of physiology was very deficient. This is probably still more true at the present time when physicians are looking upon disease more and more from the physiological point of view. Numerous references occur in the current medical literature to systolic and diastolic arterial pressure, to pulse pressure, to heart-block, to the metabolism of the purins, to the rôle of internal secretions, etc. Many new and wonderful agencies for the regulation of processes of secretion and growth—such as the hormones concerned in the secretion of the gastric and pancreatic juices, those concerned in the growth of the mammary gland, etc.—are being discovered. Apparatus which was formerly strictly confined to the physiological laboratory—kymographs, tambours, blood-pressure apparatus, etc.—are now found in the hospital wards; even the galvanometer has been proposed as a measurer of the emotions in psychiatry. Manufacturers of drugs, ferments, etc., are urging the physician to take advantage of recent advances in physiology and prescribe their preparations of "granules of the kidney," of the Isles of Langerhans, etc. In some cases these preparations and their method of exploitation smack so plainly of humbuggery that only the most credulous are deceived. But as the mechanisms by which the processes of the body are regulated are gradually understood and as it becomes more and more evident that some of these may be influenced by diet, drugs, and other means, it becomes increasingly difficult for the practicing physician to avoid, on the one hand, failing to make use of these discoveries in diagnosis and treatment and, on the other hand, of becoming the dupe of ignorant or dishonest manufacturers; that the graduates of even the best medical schools too often go to the one or the other extreme is well known. Thus it is undeniable that many physicians after they leave the medical school act consciously or unconsciously upon the "physiology" they learn from trade circulars or "write-ups" (often skilfully disguised) which unfortunately are too often found in the reading columns of medical journals of influence.

The above illustrations indicate how desirable it is for physicians to have some recent trustworthy work on physiology which they can frequently consult. The title page of Howell's Physiology states that it is a text-book "for medical students and physicians." It is from the latter standpoint that it seems desirable to discuss this volume at the present time. The admirable features of the work from the standpoint of the medical student and the general scope of the book were discussed in these columns when the first edition appeared and need not be repeated. It was predicted at that time that this would become the leading text-book of physiology in English-speaking countries. This prediction seems to have been fulfilled. A few teachers have stated that the work is too advanced for their students; a few others that it is too elementary. The truth is probably that the author, who is such a successful and experienced teacher, has come as near meeting the needs of the better medical students as it is possible for any one to do. It would certainly seem that a medical school whose students are not prepared to use such a work as this or which cannot devote sufficient time to cover it satisfactorily has little excuse for existence.

A similarly favorable opinion can be given of the work from the standpoint of an advanced student or physician. Although most text-books on this subject claim to be "for medical students and physicians" a very little examination usually shows that the authors or publishers have little realization of what a book making this claim should be. A physician may recognize the desirability of occasionally reviewing the old well-established facts of physiology, yet as a matter of fact when he goes to a new book it is usually for information on a specific subject. He then desires the latest views, although they are often contradictory, and seeks especially references which will enable him to quickly find the more important original articles. A person seeking such information must find most of the present text-books very unsatisfactory. Some contain no references to the literature whatever. Others dismiss subjects still under discussion with scarcely a word; one of the recent works, for example, states that the parathyroids have at present only an anatomical interest. It seems to the reviewer that the present work more nearly deserves the title for "medical students and physicians" than any of the others with which he is acquainted, although from the tone of the author's preface (in which he explains why subjects still in controversy are included) it would seem that he was thinking of the medical student much more than of the physician when he wrote it. Perhaps it was the publisher rather than the author who added the "for the physician." Neverthe-

less, it is believed that the physician can nowhere find a clearer and more succinct account of the present status of physiology than here; most physicians would undoubtedly be surprised to see how antiquated much of their knowledge of the subject is.

The second desideratum of a book for advanced students—carefully selected references to the literature—has been met in this book better than in most text-books. It would obviously be impracticable to attempt to give references to even the most important original articles in a book designated as a text-book; the best that an author can do is, as Howell states, to cite "those works which themselves contain a more or less extensive discussion and literature." Howell refers frequently to Nagel's *Handbuch*, Schäfer's text-book, the *Ergebnisse der Physiologie*, and a few monographs as well as to extensive articles in current, especially physiological, journals. It seems to the reviewer that the value of the work could have been very considerably increased with but little increase in size by including references to the splendid *Sammelreferate* which so frequently appear in the *Biochemisches Centralblatt* and *Zentralblatt für die gesammte Physiologie und Pathologie des Stoffwechsels* and to the articles on special topics in physiology to be found in many of the large treatises on practice, obstetrics, neurology, urology, diseases of children, of the eye, etc. Perhaps a few more references to pathology and pharmacology could have profitably been introduced. Thus, as is evident from the brief account in this book, practically nothing is known about the physiology of the thymus; a little is known concerning its condition in certain pathological states and it seems not improbable that hints as to the function of this organ will come from the latter rather than from purely physiological studies. The conceptions of heart-block and dissociation of auricular and ventricular rhythm have played a prominent part in the pharmacology of digitalis for many years and could well be used to further illustrate what is said concerning the conduction of impulses in the heart. The extent to which subjects bearing upon cognate branches of medicine can be profitably introduced into a work on physiology is, however, very limited. As the author remarks in the preface, "it is the main duty of the physiologist to till his own field." The attempts to write "practical" text-books on physiology, "to bridge the space between theory and practice," etc., usually result in the production of most impracticable and unsatisfactory works.

Physiology is advancing so rapidly that frequent revisions of such a book as the present one will be necessary to keep it abreast of the times. This will require much time and labor, and to a physiologist like Howell, who is so successful an investigator as well as teacher, this may at times become irksome, but he should have the satisfaction of feeling that he is rendering a service of the greatest value to the entire medical profession.

R. H.

A Text-Book of Practical Diagnosis. The Use of Symptoms in the Diagnosis of Disease. By Hobart Amory Hare, M. D., Professor of Therapeutics in the Jefferson Medical College of Philadelphia. New (6th) edition, thoroughly revised and rewritten. Octavo, 616 pages, with 203 engravings and 16 full-page plates. (*Philadelphia and New York: Lea Brothers & Co., 1907.*)

The present (sixth) edition of Hare's Diagnosis needs no extensive review, as the work is so well known. What was said of the fifth edition applies equally to the present volume. The sections dealing with the blood, urine, etc., are, we believe, too abbreviated to be of great value. This, however, is a natural fault, since it is manifestly impossible to present in a few chapters an adequate treatment of a subject, such as laboratory diagnosis. Another criticism we make is the sparing use of the Röntgen ray as an aid in diagnosis. In the differential diagnosis between aneurism of the thoracic aorta and mediastinal growths the fluoroscopic examination is at times the only means by which the true nature of the condition can be determined, yet we find no reference to such examination in the text; so, too, in the diagnosis of renal calculus, no mention is made of radiographic plates.

Common Diseases of the Eye. By Casey A. Wood, M. D., and Thomas A. Woodruff, M. D. (*Chicago: W. T. Keener & Co., 1907.*)

The only claim a book of this title would have for commendation would be due to an excellent arrangement of suitable subject-matter, and the precise consideration of those parts of ophthalmology of especial interest to the general practitioner. This book contains some very good paragraphs on the routine examination of the eye, and on the commoner injuries of the eye, and an excellent chapter dealing with the relationship between pathogenic conditions of the frontal, ethymoidal, sphenoidal, and superior maxillary sinuses to diseases of the eye. The major part of the book, however, is made up of subject-matter which is not especially well presented for the needs of the practitioner of general medicine. It has the fault of recommending at random a number of therapeutic measures for the treatment of the various eye diseases, instead of emphasizing certain tried therapeutic measures which have been found to give the best results.

We are sorry to see that the authors advise the instillation of eye-drops in these words, "single drops are instilled with best results by forming a drop at the end of the pipette and simply touching the edge of either lid with it." Of course the eye-dropper should never touch the lid; for, unless the dropper were sterilized after each application the whole solution from which the drop was taken would be contaminated.

The authors insert several formulæ for collyria for the relief of "ocular" headaches which would seem superfluous. [What do the authors mean by the following paragraph, p. 474: "It should be borne in mind that any departure from health may affect the eye so act as a predisposing cause of *ocular* headache. Prominent among the conditions that intensify or invite *ocular* headache are insomnia, whatever be its origin, etc."?]

The chapters on ophthalmology in its relationship with general medicine have not been written with the care which should have been bestowed on them. We take exception to the statements "that there are *few* general diseases which do not sooner or later affect some part of the visual apparatus" and that "simple anæmia and chlorosis (p. 457) are almost always associated with insufficiency of accommodation." Again, the eye signs found in hysteria instead of being frequent as one would believe from this book, are infrequently met with.

Attention is called to the fact that the page number as given in the table of contents does not always correspond to the text.

B. B. B. N.

Surgical Applied Anatomy. By Sir Frederick Treves, Bart., G. C. V. O., C. B., LL. D., F. R. C. S., etc. Fifth edition. Revised by Arthur Keith, M. D., F. R. C. S. Illustrated with 107 figures, including 41 in colors. (*Philadelphia: Lea Brothers & Co., 1907.*)

The appearance of the fifth edition of this manual since 1883 is a good indication of its popularity. In order to better determine its value to the student body among whom it has undoubtedly received its most cordial welcome the writer has made inquiries as to its practical use among students in the surgical courses at the Johns Hopkins University. To these it is evidently a most handy, rapid-reference book for surgical clinics and ward rounds. The index is well arranged and complete, the text is clear and concise, and the majority of the illustrations really illustrate. The addition of colors to this last edition is in many

instances of distinct value, but there seems a desire on the part of the publishers to use colored inks wherever possible. The best type of illustration is one where different tissues and structures are clearly contrasted by proper shading which makes clear the characteristics of each, and colors need be resorted to only in those in which there is danger of misinterpretation on account of the number of different structures involved. An example of an unnecessary use of color is found in figure 10 (page 38) which is intended to show the relation of the brain and sensorimotor areas to the skull. Here the two colors, lavender and red, really detract from the value of the illustration, as can be readily seen by referring to Quain's anatomy, from which it has been modified. Figure 12 and several others also show an unrestrained desire for unnecessary color. An inconsistency in the use of color is manifested on pages 106 (figure 23) and 114 (figure 24). In the first of these illustrations red lines are used, in the second where there is a similar necessity to outline areas, only black lines are resorted to. In either drawing black would be sufficient. This gives one the impression that much of this coloring has been introduced more to make the new edition attractive rather than to aid the student. However, figures 13, 16, and others are greatly benefited by the addition of color.

In comparing the illustrations of this last edition with those of previous editions a decided improvement is noted, and since the first publication in 1883 the number has almost doubled. Also, the text has been markedly revised, and since that time more than one hundred pages have been added, although the size of the book has not increased. That the book still remains so compact and so clearly printed is due to the thin but perfectly opaque paper on which it is printed and to the excellent typography. These, after all, are somewhat minor points. The text is what should be most carefully considered.

Throughout the entire book the statements are concise and properly grouped and at the end are thoroughly indexed. A very commendable feature in such a book is the manner in which important subjects are emphasized by italics or heavy-faced type. As a result it is not necessary to read through several pages in order to find the anatomy or the surgical relations of a certain organ or structure. Also brief outlines of many well-known surgical operations are given in connection with the anatomical description. Frequently, also, the name of the originator of the operation is noted and the description of the procedures, which, although inadequate for an operator, greatly assist the student in understanding and following operations. The book is in no way intended to replace exhaustive treatises and systems on the many branches of surgery such as those by von Bergmann, Keen, Da Costa, Stimson, Kelly, Cullen, and others. In this it differs materially from the many compends on medical sciences the intention of which is evidently to quickly assure a student that the superficial information therein contained is all that is known on that particular subject. Its field, as was before mentioned, is to aid students in understanding and intelligently following ward examinations and operations, and it is the key to more exhaustive studies. As such an aid it is, in its present revision, probably the best manual of applied anatomy at present before the medical profession.

EBEN C. HILL.

Syphilis In The Army. By MAJOR H. C. FRENCH, Royal Army Medical Corps, etc. (*London: John Bale, Sons & Danielsson, Ltd., 1907.*)

In this report the author has attempted "to show the detailed working of a preventive medicine problem in the army [English]." It is valuable and is of especial interest to army doctors. The conditions existing in the English army, which is scattered over the world, are so different from those of any other army that a detailed review of this work is useless. It should be read and studied, for only in this way can the problem of the prevalence of venereal disease in the English army be readily comprehended. It is a question of vital importance to us to-day, since we have distant colonies to which we send our troops, and to our medical corps this work should prove helpful. R. N.

The Life of Nathan Smith Davis, A. M., M. D., LL. D., 1817-1904. By I. N. DANFORTH, A. M., M. D., Chicago. Illustrated. (*Chicago: Cleveland Press, 1907.*)

The late Dr. N. S. Davis was an earnest, forceful, and, within rather narrow limits, a versatile man. He was a Sunday School teacher, a temperance lecturer, an able political speaker on occasion, an assiduous medical editor and author, an impressive medical teacher, a renowned physician, and a public spirited citizen. During his long life of public activity he impressed himself strongly upon the medical profession of America by reason of his strong convictions as to the necessity of organization on the part of physicians to enable them to exert their proper influence upon public opinion to secure necessary health and economic reforms. He was a clear thinker and tireless worker, and during his career he accomplished much to improve medical teaching in the Middle West. His name will also be honorably associated with the foundation and subsequent development of the American Medical Association for many years to come. The story of his life has been written by a devoted, loyal friend, to whom the task has been a labor of love. Those who knew Dr. Davis personally (and who did not?) will read with much gratification and profit this story of his life.

The Physician's Visiting List for 1908. (*Philadelphia: P. Blakiston's Son & Co.*)

That the publishers have met with success in this pocket notebook is evident from the fact that this is its fifty-seventh year of publication. The book is well arranged for the recording of visits, and is supplemented by various useful tables on poisons and their antidotes, dosage, incompatability, etc. It is light and of convenient size, and will be of service to any busy practitioner. R. N.

Cutaneous Therapeutics. By W. H. HARDAWAY, M. D., LL. D., and JOSEPH GRINDON, PH. B., M. D. (*Philadelphia: Lea Brothers & Co., 1907.*)

This book is based upon the descriptive and therapeutic sections of Hardaway's "Manual of Skin Diseases." In this new product of joint authorship, the descriptions of the various diseases, and general and medicinal treatment have been written by Hardaway; and Grindon has prepared the parts dealing with electrical and surgical treatment.

The authors have omitted all reference to the principles underlying dermatology, though they are intimately connected with rational treatment. However, a section on general treatment and methods, which is very good, fills about 100 pages at the back of the book.

A short description is given of each disease and sometimes its etiology is mentioned. Under differential diagnosis only the names of the diseases to be eliminated are told without any of their characteristics. Treatment is about as one finds in the best text-books and no more. Occasionally one finds suggestions at variance with his own experience; for instance, the authors advise not going above five drops dosage with Fowler's solution; again, one prescription calls for an ointment of chrysarobin 20 per cent strength, which is much too strong to start with, and which few skins can stand at any time.

It is hard to imagine why no illustrations are in the book. They are certainly necessary to help a physician make a diag-

nosis, and a correct diagnosis is essential for successful treatment. If 75 or 100 well-selected photographs of common skin diseases were added it would make the book a more valuable addition to our literature.

Elements of Physics for Medical Students. By FREDERIC JAMES M. PAGE, B. Sc., F. I. C., etc. (*Chicago: W. T. Keener & Co., 1907.*)

In his preface the author states that his object is to supply a book which shall cover what is required in the examinations of the Conjoint Board and the Society of Apothecaries, and also emphasize those branches of physics which are of most use to the apothecary and the physician. The difficulty in preparing a book of this kind consists not only in making the proper selection of topics, but also in arranging and treating them so as to produce a connected whole and not merely a more or less disconnected collection of facts. The author has succeeded remarkably well, the chapters dealing with heat and electricity being especially interesting.

All demonstrations and explanations are simple and brief, but generally as accurate as can well be expected in a book of this kind; the numerous illustrations and diagrams are instructive.

An error, not included in the "Errata," was noticed on page 206, line 3 from top, where "two-fifths" should be substituted for "three-fifths."

A well-selected list of some hundred instructive laboratory experiments forms the last part of the book.

J. A. ANDERSON.

NOTES AND NEWS.

Dr. F. C. Ainley is assisting Dr. Hunter Robb in the Lakeside Hospital, Cleveland, Ohio.

Dr. John S. Billings, Jr., is Assistant Medical Director of the Department of Infectious Diseases of the Board of Health, New York City. His address is 32 East 53d Street, New York.

Dr. George Blumer is Attending Physician to the New Haven Hospital and Dispensary, and Consulting Physician to the Middlesex Hospital, Middletown, Conn. Address: 204 York Street, New Haven, Conn.

Dr. Walter V. Brem is Chief of the Medical Clinic, Colon Hospital, Cristobal, C. Z.

Dr. Clinton E. Brush is Associate Professor of Medicine and Instructor in Clinical Microscopy, University of Nashville Medical School; Pathologist to the Nashville City Hospital and The Woman's Hospital of the State of Tennessee. Address: 118 Eighth Avenue, North, Nashville, Tenn.

Dr. John G. Clark is Professor of Gynæcology, University of Pennsylvania; Consultant Gynæcologist to the Bryn Mawr Woman's, Germantown, Chestnut Hill, and Phœnixville Hospitals; Chairman of the Board of Public Instruction on Medical Subjects of the American Medical Association; Chairman Section on Gynæcology, College of Physicians, Philadelphia.

Dr. T. Wood Clark is Fellow of the Rockefeller Institute for Medical Research, and Acting Clinical Assistant, Children's Department, Vanderbilt Clinic. His address is 157 West 80th Street, New York City.

Dr. Malvern B. Clopton is Instructor in Surgery at the Washington University, St. Louis, and Visiting Surgeon to the St. Louis Hospital and St. Luke's Hospital. His address is Humboldt Building, St. Louis, Mo.

Dr. Marshall Fabyan is Assistant in Comparative Pathology, Harvard University. His address is Warren Street, Brookline, Mass.

Dr. Frederick R. Ford is Visiting Surgeon and Pathologist to St. Luke's Hospital, Utica. His address is 37-38 Clarendon Building, Utica, N. Y.

Dr. H. Z. Giffin is Attending Physician to St. Mary's Hospital, Rochester, Minn. Address: Masonic Temple, Rochester, Minn.

Dr. Campbell P. Howard is Demonstrator in Clinical Medicine and Clinical Chemistry, McGill University; and Physician to the Medical Outpatient Department and Assistant to the Children's Clinic, Montreal General Hospital. His address is 56 Mackay Street, Montreal, Canada.

Dr. Clarence B. Ingraham, Jr., is Assistant Physician to Dr. Howard A. Kelly's Sanitarium, 1418 Eutaw Place, Baltimore.

Dr. Harry T. Marshall is Professor of Pathology and Bacteriology, Philippine Medical School, Manilla, P. I.

Dr. R. T. Miller, Jr., is Resident Surgeon, The Johns Hopkins Hospital.

Dr. Roger S. Morris is Assistant in Medicine in the Clinical Laboratory of the Johns Hopkins Medical School. His address is The Arundel, Baltimore.

Dr. Rupert Norton is Assistant Superintendent, The Johns Hopkins Hospital.

Dr. Eugene L. Opie is Assistant in the Department of Pathology and Bacteriology, The Rockefeller Institute for Medical Research; Visiting Pathologist to the Presbyterian Hospital, New York, and Co-editor of the Journal of Experimental Medicine.

Dr. Lindsay Peters is in charge of the Medical Department of the Bolivia Railroad. His address is La Paz, Bolivia.

Dr. Jewett V. Reed is Consulting Surgeon to the Eleanor Hospital for Children, Director of the Laboratory of Neurology and Surgical Pathology, Indiana Medical College, and Visiting Clinical Surgeon, Indianapolis City Hospital.

Dr. F. Peyton Rous is Instructor in Pathology, University of Michigan.

Dr. Maurice Rubel is Attending Physician to the Michael Reese Hospital, Chicago, Ill.

Dr. Stephen Rushmore is House Physician to the Boston Lying-In Hospital.

Dr. Georgiana Sands is Visiting Physician to the Port Chester Hospital, Port Chester, N. Y.

Dr. W. F. M. Sowers is Assistant Professor of Surgery in the George Washington University. His address is 1707 Massachusetts Avenue, Washington, D. C.

Dr. Walter R. Steiner is Consulting Physician to the Middlesex Hospital, Middletown, Conn.

Dr. Hugh A. Stewart is Assistant Resident Physician, The Johns Hopkins Hospital.

Dr. Harvey B. Stone is Adjunct Professor of Surgery, University of Virginia.

Dr. Henry J. Storrs is Resident Obstetrician, The Johns Hopkins Hospital.

Dr. R. P. Strong is Professor of Tropical Medicine, Philippine Medical School, and Chief of the Biological Laboratory, Manilla, P. I.

Dr. J. H. J. Upham is Associate Professor of Medicine in the Starling Ohio Medical College, Columbus, Ohio, and Managing Editor of the Ohio State Medical Journal.

Dr. Frank Watson is Visiting Physician to the Charity Hospital, Lecturer and Instructor in Medicine, Tulane University, and Vice-President, Southern Branch American Medical Association. His address is 724 Baronne Street, New Orleans, La.

Dr. Stephen H. Watts is Professor of Surgery in the University of Virginia, and Director of the University of Virginia Hospital. His address is Charlottesville, Va.

Dr. Edward Werckmeister, Assistant Resident Surgeon, 1894-1895, is Director of the Sanatorium "Villa Quisiana," Hasserode i. Harz, Germany.

Dr. George H. Whipple is Pathologist to the Ancon Hospital, Ancon, Panama.

Dr. Harry I. Wiel is Clinical Assistant in Medicine and Instructor in Physical Diagnosis, Cooper Medical College. His address is 943 Van Ness Avenue, San Francisco, Cal.

Dr. Otis B. Wright is Clinical Lecturer in Surgery, University of Oregon Medical Department, Attending Physician to the Free Dispensary, University of Oregon, and Attending Physician to the Day Nursery, Portland, Oregon.

Dr. J. Whitridge Williams has been appointed Director of the Johns Hopkins Hospital Dispensary.

Dr. Paul G. Woolley is Chief Medical Inspector and Medical Adviser to the Kingdom of Siam. His address is Government Serum Laboratories, Phrapatoom, Siam.

Dr. Sarah D. Wyckoff is Attending Physician at the State Dispensary for Treatment and Prevention of Tuberculosis, Wilkesbarre, Penna.

RESOLUTIONS ADOPTED BY THE EXECUTIVE COMMITTEE OF THE AMERICAN NATIONAL RED CROSS, OCTOBER 18, 1907.

WHEREAS, By international agreement in the Treaty of Geneva, 1864, and the revised Treaty of Geneva, 1906, "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross" were adopted to designate the personnel protected by this Convention, and

WHEREAS, The Treaty further provides (Article 23) that "the emblem of the Red Cross on a white ground and the words Red Cross or Geneva Cross can only be used whether in time of peace or war, to protect or designate sanitary formations and establishments, the personnel and materiel protected by this Convention," and

WHEREAS, The American National Red Cross comes under the regulations of this Treaty according to Article 10, "volunteer aid societies, duly recognized and authorized by their respective Governments," such recognition and authority having been conferred upon the American National Red Cross in the Charter granted by Congress, January 5, 1905, Sec. 2, "The corporation hereby created is designated as the organization which is authorized to act in matters of relief under said Treaty," and, furthermore,

WHEREAS, In the Revised Treaty of Geneva, 1906, in Article 27, it is provided that "the signatory powers whose legislation should not now be adequate, engage to take or recommend to their legislatures such measures as may be necessary to prevent the use by private persons or by societies other than those upon which this Convention confers the right thereto of the emblem or name of the Red Cross or Geneva Cross,"

Be it Resolved, That the Executive Committee of the American National Red Cross requests that all hospitals, health departments, and like institutions kindly desist from the use of the Red Cross created for the special purpose mentioned above, and suggests that for it should be substituted some other insignia, such as a green St. Andrew's Cross on a white ground, to be named the "Hospital Cross," and used to designate all hospitals (save such as are under the Medical Departments of the Army and Navy and the authorized volunteer aid society of the Government), all health departments and like institutions, and, further,

Be it Resolved, That the Executive Committee of the American National Red Cross likewise requests that all individuals or business firms and corporations who employ the Geneva Red Cross for business purposes, kindly desist from such use, gradually withdrawing its employment and substituting some other distinguishing mark.

NATIONAL ASSOCIATION FOR THE STUDY AND PREVENTION OF TUBERCULOSIS. TRANSACTIONS OF THE THIRD ANNUAL MEETING, WASHINGTON, D. C., MAY, 1907.

The Transactions of The National Association for the Study and Prevention of Tuberculosis are a series of publications which should be familiar to all students of tuberculosis. To members of the Association they are distributed free, and to others sold from the executive office, 105 East 22d Street, New York. The volumes appear annually and embody the papers read at the yearly meeting of the Association. They reflect the progress of knowledge in practically all phases of the tuberculosis questions—many being purely scientific and adapted only to students of bacteriology or pathology, others to the clinician or the social worker, while still others are of such general character that they are interesting and instructive to lay readers.

The third volume of the series containing the proceedings of the meeting in Washington in May last has just appeared. It lacks none of the interest of the earlier numbers, is a most creditable production, and demonstrates what splendid work the Association is doing. It contains 366 pages, opening with the address of Dr. Biggs, the President; Dr. Flick reports upon the International Congress of Tuberculosis which is to be held in this country in 1908; Dr. Farrand reviews the Campaign against Tuberculosis in the United States; then follow papers on a wide range of topics with the discussions thereon. These are too numerous for mention in detail, but a few of the titles taken at random will indicate how wide a field is covered.

"Compulsory Notification and Registration of Tuberculosis," Hermann M. Biggs, New York.

"The Class Method of Treating Consumption in the Homes of the Poor," Joseph H. Pratt, Boston.

"A Working Program for a Small City," Oscar H. Rogers, Yonkers, N. Y.

"School and Tuberculosis," John H. Lowman, Cleveland.

"Reports of Committees on Clinical Nomenclature, on Medication, and on Mixed Infection."

"The Split Products of the Tubercle Bacilli and Their Effects upon Animals," Victor C. Vaughan and Sybil May Wheeler, Ann Arbor.

"Homologous Bacteria as a Vaccine in Tuberculosis," Albert H. Allen, Saranac Lake.

"The Living Pathology of Tuberculosis of the Bones in Early Life," Thomas M. Rotch and Arial W. George, Boston.

"The Treatment of Surgical Tuberculosis by Hyperemia (Bier)," Von Schmieden, Bonn, Germany.

THE MARY PUTNAM JACOBI FELLOWSHIP.

The Women's Medical Association of New York City desiring to pay a permanent tribute to Dr. Mary Putnam Jacobi invites the co-operation of all who desire to further the higher medical education of women of the United States in founding a fellowship to bear her name.

The Fellowship Fund to aid post-graduate women students in medicine must amount to at least $25,000, in order to provide an annual income of $1000. The sum of $8000 has already been contributed; Mrs. Russell Sage has given $1000, and other contributions have ranged from $500 to $2.

Dr. Mary Putnam Jacobi received her degree in medicine from the Women's Medical College of Pennsylvania, and later secured an international reputation as a woman physician. Largely through her efforts the École de Médecine in Paris was opened to women. She was the first woman admitted to the New York Academy of Medicine. Her hospital work and writings marked her as a woman of brilliant ability, and gave to her a rank in the medical profession at large which no other woman has as yet obtained, and a position of equality with the most prominent leaders in the science of medicine.

Among those interested in this memorial, whose names are on the list of honorary members of the committee are: Prof. Felix Adler, Mr. Jacob A. Riis, William Osler, M. D., Pres. Nicholas Murray Butler, Hon. Seth Low, Pres. Benjamin Ide Wheeler, Mrs. Henry Villard, Pres. M. Cary Thomas, Mr. Richard Watson Gilder, Dean Laura Drake Gill, Rev. Percy Stickney Grant, Pres. J. Y. Schurman, Miss Grace H. Dodge, Charles L. Dana, M. D., Howard A. Kelly, M. D., Mrs. Ellen H. Richards, Emily Blackwell, M. D., Francis P. Kinnicutt, M. D., Mrs. Frederick Nathan.

Contributions to the above-named fund will be gratefully received by Miss Eleanor Tomes, M. D., 136 East 30th Street, New York.

BOOKS RECEIVED.

The Prophylaxis and Treatment of Internal Diseases. By F. Forchheimer, M. D., 1906. 8vo. 652 pages. D. Appleton & Company, New York and London.

Clinical Diagnosis. A Text-Book of Clinical Microscopy and Clinical Chemistry for Medical Students, Laboratory Workers, and Practitioners of Medicine. By Charles Phillips Emerson, A. B., M. D. [1906.] 8vo. 641 pages. J. B. Lippincott Company, Philadelphia and London.

A Text-Book of Human Physiology. By Dr. Robert Tigerstedt. Translated from the third German edition and edited by John R. Murlin, A. M., Ph. D. With an introduction to the English edition by Professor Graham Lusk, Ph. D., F. R. S. (Edinb.). 1906. 8vo. 751 pages. D. Appleton & Company, New York and London.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A. B., M. D. 1906. 12mo. 228 pages. Rowe Publishing Company, Chicago.

Manual of Anatomy. Systematic and Practical. Including Embryology. By A. M. Buchanan, M. A., M. D., C. M., F. F. P. S. (Glas.) Vol. I. Osteology; Upper Limb; Lower Limb. With 268 illustrations, mostly original and in colors. 1906. 8vo. 596 pages. W. T. Keener & Co., Chicago.

United States, War Department, Surgeon-General's Office. Index-Catalogue of the Library. Authors and Subjects. Second series. Vol. XI. Mo—Nyström. 1906. 4to. 858 pages. Government Printing Office, Washington.

Medical and Surgical Report of the Presbyterian Hospital in the City of New York. Vol. VII. 1906. Edited by John S. Thacher, M. D., George Woolsey, M. D. 8vo. 235 pages. Trow Directory Printing and Bookbinding Company, New York.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., assisted by H. R. M. Landis, M. D. Vol. III. September, 1906. 8vo. 298 pages. Lea Brothers & Co., Philadelphia and New York.

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. By John Attfield, F. R. S. Edited by Leonard Dobbin, Ph. D. (Würzburg), F. I. C., F. C. S. Nineteenth edition. 1906. 12mo. 756 pages. Lea Brothers & Co., Philadelphia and New York.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. Kelly, A. M., M. D. Vol. III. Sixteenth series, 1906. 8vo. 302 pages. J. B. Lippincott Company, Philadelphia and London.

A Text-Book of Genito-Urinary Diseases. Including Functional Sexual Disorders in Man. By Doctor Leopold Casper. Translated and edited with additions by Charles W. Bonney, B. L., M. D. With 213 illustrations and 23 full-page plates, of which 7 are in colors. 1906. 8vo. 618 pages. P. Blakiston's Son & Co., Philadelphia.

Prevalent Diseases of the Eye. A Reference Handbook Especially Adapted to the Needs of the General Practitioner and the Medical Student. By Samuel Theobald, M. D. With 219 illustrations and 10 colored plates. 1906. 8vo. 551 pages. W. B. Saunders Company, Philadelphia and London.

A Manual of Otology. By Gorham Bacon, A. B., M. D. With an Introductory Chapter by Clarence John Blake, M. D. Fourth edition, revised and enlarged. With 134 illustrations and 11 plates. 1906. 12mo. 485 pages. Lea Brothers & Co., New York and Philadelphia.

Operative Gynecology. By Howard A. Kelly, A. B., M. D., LL. D., F. R. C. S. (Hon. Edinb.). With 11 plates and 703 original illustrations, for the most part by Max Brödel Second edition, revised and enlarged. Two volumes. 1906. 8vo. D. Appleton & Company, New York and London.

An Introduction to Physiology. By William Townsend Porter, M. D. 1906. 12mo. 587 pages. J. B. Lippincott Company, Philadelphia and London.

Stöhr's Histology. Arranged upon an Embryological Basis by Dr. Frederic T. Lewis. From the twelfth German edition by Dr. Philipp Stöhr. Sixth American edition. With 450 illustrations. 1906. 8vo. P. Blakiston's Son & Company, Philadelphia.

A Treatise on Surgery. By George Ryerson Fowler, M. D. Containing 888 text illustrations and 4 colored plates, all original. Vol. II. 1906. 4to. 714 pages. W. B. Saunders Company, Philadelphia and London.

Modern Clinical Medicine. Diseases of the Digestive System. Edited by Frank Billings, M. D. An authorized translation from "Die Deutsche Klinik" under the general editorial supervision of Julius L. Salinger, M. D. 1906. 8vo. 824 pages. D. Appleton & Company, New York and London.

Elementary Manual of Regional Topographical Dermatology. By R. Sabouraud. English translation by C. F. Marshall. With 231 illustrations in the text. 1906. 8vo. 660 pages. Rebman Company, New York; Rebman Limited, London.

The Treatment of Syphilis. By Alfred Fournier. English translation of the second edition (revised and enlarged) by C. F. Marshall, M. D., F. R. C. S. 1906. 8vo. 219 pages. Rebman Limited, London; Rebman Company, New York.

The Diseases of Women. A Handbook for Students and Practitioners. By J. Bland-Sutton, F. R. C. S. (Eng.), and Arthur E. Giles, M. D., B. Sc. (Lond.), F. R. C. S. (Edin.). Fifth edition. With 129 illustrations. 1906. 12mo. 536 pages. Rebman Limited, London; Rebman Company, New York.

Conferences on the Moral Philosophy of Medicine. Prepared by An American Physician. [1906.] 12mo. 368 pages. Rebman Company, New York; Rebman Limited, London.

Atlas of Cutaneous Morbid Histology. Consisting of 53 colored figures on 24 plates and text. By Dr. Max Joseph and J. B. Van Deventer. 1906. 4to. 48 pages. W. T. Keener & Company, Chicago.

Text-Book of Comparative General Pathology. For Practitioners and Students of Veterinary Medicine. By Professor Dr. Th. Kitt. Authorized translation by Dr. William W. Cadbury. Edited with notes and additional illustrations by Dr. Allen J. Smith. Illustrated with 4 colored plates and 131 text illustrations. 1906. 8vo. 471 pages. W. T. Keener & Company, Chicago.

Practical Text-Book of Midwifery for Nurses. By Robert Jardine. With 49 illustrations. Third edition. 1906. 12mo. 276 pages. Henry Kimpton, London; W. T. Keener & Company, Chicago.

Mercer's Company Lectures on Recent Advances in the Physiology of Digestion. Delivered in the Michaelmas Term, 1905, in the Physiological Department of University College, London. By Ernest H. Starling, M. D., F. R. S. With 12 illustrations. 1906. 8vo. 156 pages. W. T. Keener & Company, Chicago.

Kimpton's Essential Series. Essentials of Medical Electricity. By Edward Reginald Morton. With 11 plates and 70 illustrations. 1905. 12mo. 192 pages. Henry Kimpton, London; W. T. Keener & Company, Chicago.

Essentials of Human Physiology. By D. Noël Paton, M. D., B. Sc., F. R. C. P. (Ed.) Second edition, revised and enlarged. 1905. 8vo. 444 pages. W. T. Keener & Company, Chicago; William Green & Sons, Edinburgh and London.

A Treatise on the Motor Apparatus of the Eyes. Embracing an Exposition of the Anomalies of the Ocular Adjustments and their Treatment, with the Anatomy and Physiology of the Muscles and their Accessories. By George T. Stevens, M. D., Ph. D. Illustrated with 184 engravings, some in colors. 1906. 8vo. 496 pages. F. A. Davis Company, Philadelphia.

The Ear and its Diseases. By Seth Scott Bishops, B. S., M. D., LL. D. Illustrated with 27 colored lithographs and 200 additional illustrations. 1906. 8vo. 439 pages. F. A. Davis Company, Philadelphia.

Outlines of Human Embryology. A Medical Student's Handbook of Embryology. By George Reese Satterlee, M. A., M. D. First edition. 1906. 12mo. 173 pages. John Wiley & Sons, New York; Chapman & Hall, London.

Genito-Urinary Diseases and Syphilis. By Henry H. Morton, M. D. Second edition, revised and enlarged. Illustrated with 158 half-tones and photo-engravings, and 7 full-page color-plates. 1906. 8vo. 500 pages. F. A. Davis Company, Philadelphia.

American Practice of Surgery. A Complete System of the Science and Art of Surgery. By Representative Surgeons of the United States. Editors: Joseph D. Bryant, M. D.; Albert H. Buck, M. D. Vol. I. Profusely illustrated. 1906. 4to. 818 pages. Willam Wood & Company, New York.

The Diseases of the Nose, Throat, and Ear. By Charles Prevost Grayson, A.M., M. D. Second edition, revised and enlarged. 1906. 8vo. 532 pages. Illustrated with 152 engravings and 15 plates in colors and monochrome. Lea Brothers & Co., Philadelphia and New York.

A Text-Book on the Practice of Gynecology. By William Easterly Ashton, M. D., LL. D. With 1057 new line drawings illustrating the text. By John V. Alteneder. Third edition, revised and enlarged. 1906. 8vo. 1097 pages. W. B. Saunders Company, Philadelphia and London.

A Treatise on Surgery. By George Ryerson Fowler, M. D. Containing 888 text-illustrations and 4 colored plates, all original. Vol. I. 1906. 4to. 722 pages. W. B. Saunders Company, Philadelphia and London.

Abdominal Surgery. By B. G. A. Moynihan, M. S. (London), F. R. C. S. (Leeds). Second edition, thoroughly revised. 1906. 8vo. 815 pages. W. B. Saunders Company, Philadelphia and London.

A Manual of the Diseases of Infants and Children. By John Ruhräh, M. D. Illustrated. W. B. Saunders Company, Philadelphia and London.

Manual of Clinical Chemistry. By B. A. E. Austin, A. B., M. D. 1907. 12mo. 278 pages. D. C. Heath & Co., Boston.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. By Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. Kelly, A. M., M. D. Vol. IV. Sixteenth series. 1906. 8vo. 322 pages. J. B. Lippincott Company, Philadelphia and London

Atlas and Text-Book of Human Anatomy. By Johannes Sobotta. Edited with additions by J. Playfair McMurrich. Vol. I. Bones, Ligaments, Joints, and Muscles. Vol. II. The Viscera, Including the Heart. 1906. 8vo. W. B. Saunders Company, Philadelphia and London.

Surgery: Its Principles and Practice. By Various Authors. Edited by William Williams Keen, M. D., LL. D. Vol. I. With 261 text-illustrations and 17 colored plates. 1906. 8vo. 983 pages. W. B. Saunders Company, Philadelphia and London.

Beiträge zur Syphilis-Forschung. Von Dr. Max von Niessen, Wiesbaden. IX. 1906. 4to. Selbstverlag.

Tumors. Innocent and Malignant. Their Clinical Characters and Appropriate Treatment. By J. Bland-Sutton, F. R. C. S. Fourth edition. With 355 engravings. 1907. 8vo. 675 pages. W. T. Keener & Company, Chicago.

Pulmonary Tuberculosis. Its Modern and Specialized Treatment. By Albert Philip Francine. Illustrated. [1906.] 8vo. 247 pages. J. B. Lippincott Company, Philadelphia and London.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D.; assisted by H. R. M. Landis, M. D. Vol. IV. December, 1906. 8vo. 349 pages. Lea Brothers & Co., Philadelphia and New York.

Studies in Gynecology. Presented in the Form of Illustrated Problems for Classroom Work. By John A. Sampson, A. B., M. D. 1907. 4to. 442 pages. Fort Orange Press, Albany, N. Y.

Scientific Memoirs. (New Series) No. 26. Leucocytozoon Canis. By Captain S. R. Christophers, M. B., I. M. S. 1906. 4to. 16 pages. Office of the Superintendent of Government Printing, Calcutta, India.

Cook County Hospital Reports, 1906. Compiled and edited under the direction of the Publication Committee of the Cook County Hospital Attending Staff. Dr. W. L. Baum, Dr. C. L. Mix, Dr. C. E. Kahlke, Dr. E. R. Le Count, Dr. W. A. Evans. 1906. 8vo. 304 pages. Henry O. Shepard Company, Chicago.

Tumors of the Cerebrum. Their Focal Diagnosis and Surgical Treatment. By Charles K. Mills, M. D.; Charles H. Frazin, M. D.; Wm. G. Spiller, M. D.; G. E. De Schweinitz, M. D.; Theodore H. Weisenburg, M. D. 1906. 8vo. Philadelphia.

Transactions of the American Ophthalmological Society. Forty-second Annual Meeting. New York City, 1906. Vol. XI. Part 1. Published by the Society, Hartford.

Text-Book of Psychiatry. A Psychological Study of Insanity. By Dr. E. Mendel. Authorized translation edited and enlarged by William C. Krauss, M. D. 1907. 8vo. 311 pages. F. A. Davis Company, Philadelphia.

A Treatise on Orthopedic Surgery. By Royal Whitman, M. D. Third edition, revised and enlarged. Illustrated with 554 engravings. 1907. 8vo. 871 pages. Lea Brothers & Co., Philadelphia and New York.

The Harvey Lectures. Delivered under the Auspices of The Harvey Society of New York, 1905-06. By Prof. Hans Meyer, Prof. Carl von Noorden, Prof. Frederick G. Novy, Dr. P. A. Levene, Prof. W. H. Park, Prof. Lewellys F. Barker, Prof. Frederick S. Lee, Prof. Lafayette B. Mendel, Prof. T. H. Morgan, Prof. Charles S. Minot, Prof. J. Clarence Webster, Prof. Theobald Smith, Prof. W. H. Howell. 1906. 8vo. 337 pages. J. B. Lippincott Company, Philadelphia and London.

Syllabus of Lectures on Human Embryology. An Introduction to the Study of Obstetrics and Gynæcology. By Walter Porter Manton, M. D. Third edition, revised and enlarged. Illustrated with numerous outline drawings. 1906. 12mo. 136 pages. F. A. Davis Company, Philadelphia.

The Practitioner's Library. The Practice of Obstetrics. In Original Contributions by American Authors. Edited by Reuben Peterson, A. B., M. D. Illustrated with 523 engravings and 30 full-page plates. 1907. 8vo. 1087 pages. Lea Brothers & Co., Philadelphia and New York.

Transactions of the American Surgical Association. Volume the Twenty-fourth. Edited by Richard H. Harte, M. D., Recorder of the Association. 1906. 8vo. 591 pages. Printed for the Association, Philadelphia.

Organic and Functional Nervous Diseases. By M. Allen Starr, M. D., Ph. D., LL. D., Sc. D. Second edition, thoroughly revised. Illustrated with 282 engravings in the text and 26 plates in colors and monochrome. 1907. 8vo. 816 pages. Lea Brothers & Co., New York and Philadelphia.

Scientific Memoirs (New Series) No. 25. On the Importance of Larval Characters in the Classification of Mosquitoes. By Captain S. R. Christophers, M. B., I. M. S. 1906. 4to. 18 pages. Office of the Superintendent of Government Printing, Calcutta, India.

American Practice of Surgery. A Complete System of the Science and Art of Surgery, by Representative Surgeons of the United States and Canada. Editors: Joseph D. Bryant, M. D.; Albert H. Buck, M. D. Complete in eight volumes. Profusely illustrated. Vol. II. 1907. 4to. 778 pages. William Wood & Company, New York.

A Study of the Human Blood-Vessels in Health and Disease. A Supplement to "The Origin of Disease." By Arthur V. Meigs, M. D. With 103 original illustrations. [1907.] 8vo. 136 pages. J. B. Lippincott Company, Philadelphia and London.

Diseases of the Lungs. Designed to be a Practical Presentation of the Subject for the Use of Students and Practitioners of Medicine. By Robert H. Babcock, A. M., M. D. With 12 colored plates and 104 text-illustrations. 1907. 8vo. 809 pages. D. Appleton & Company, New York and London.

Transactions of the American Gynecological Society. Vol. XXXI. For the year 1906. 8vo. 451 pages. Wm. J. Dorman, Printer, Philadelphia.

Biographic Clinics. Essays Concerning the Influence of Visual Function, Pathologic and Physiologic upon the Health of Patients. By George M. Gould, M. D. Vols. IV and V. 1906-1907. P. Blakiston's Son & Company, Philadelphia.

Green's Encyclopedia and Dictionary of Medicine and Surgery. Vol. I, Aachen to Brain. Vol. II, Bread to Ear. 1906. 4to. W. T. Keener & Company, Chicago.

Notes on Blood-Serum Therapy. Preventive Inoculation and Toxin and Serum Diagnosis. By Walter Jowett, F. R. C. V. S., D. V. H. 1907. 12mo. 204 pages. W. T. Keener & Company, Chicago.

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Anatomical Terminology. With Special Reference to the [BNA]. By Lewellys F. Barker, M. D. With vocabularies in Latin and English, and illustrations. 1907. 8vo. 103 pages. P. Blakiston's Son & Company, Philadelphia.

Saint Bartholomew's Hospital Reports. Edited by A. E. Garrod, M. D., and W. McAdam Eccles, M. S., F. R. C. S. Vol. XLII. 1907. 8vo. xxvii + 179 pages. Smith, Elder, and Company. London.

Iowa State Institutions. Fifth Biennial Report of the Board of Control. For the Year Ending June 30, 1906. 8vo. 540 pages. Des Moines, Iowa.

A Text-Book of the Practice of Medicine. By Hobart Amory Hare, M. D., B. Sc. Second edition, revised and enlarged. Illustrated with 131 engravings and 11 plates in colors and monochrome. 1907. 8vo. 1132 pages. Lea Brothers & Co., Philadelphia and New York.

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Introduction to Infectious and Parasitic Diseases. Including their Cause and Manner of Transmission. By Millard Langfeld, A. B., M. B. (Johns Hopkins). With an Introduction by Lewellys F. Barker, Professor of Medicine at the Johns Hopkins University. With 33 illustrations. 1907. 12 mo. 260 pages. P. Blakiston's Son & Company, Philadelphia.

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Index-Catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Second series. Vol. XII. O—Periodicals. 1907. 4to. 978 pages. Government Printing Office, Washington.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles. Edited by W. T. Longcope, M. D. Vol. III. Seventeenth series. 1907. 8vo. 296 pages. J. B. Lippincott Company, Philadelphia and London.

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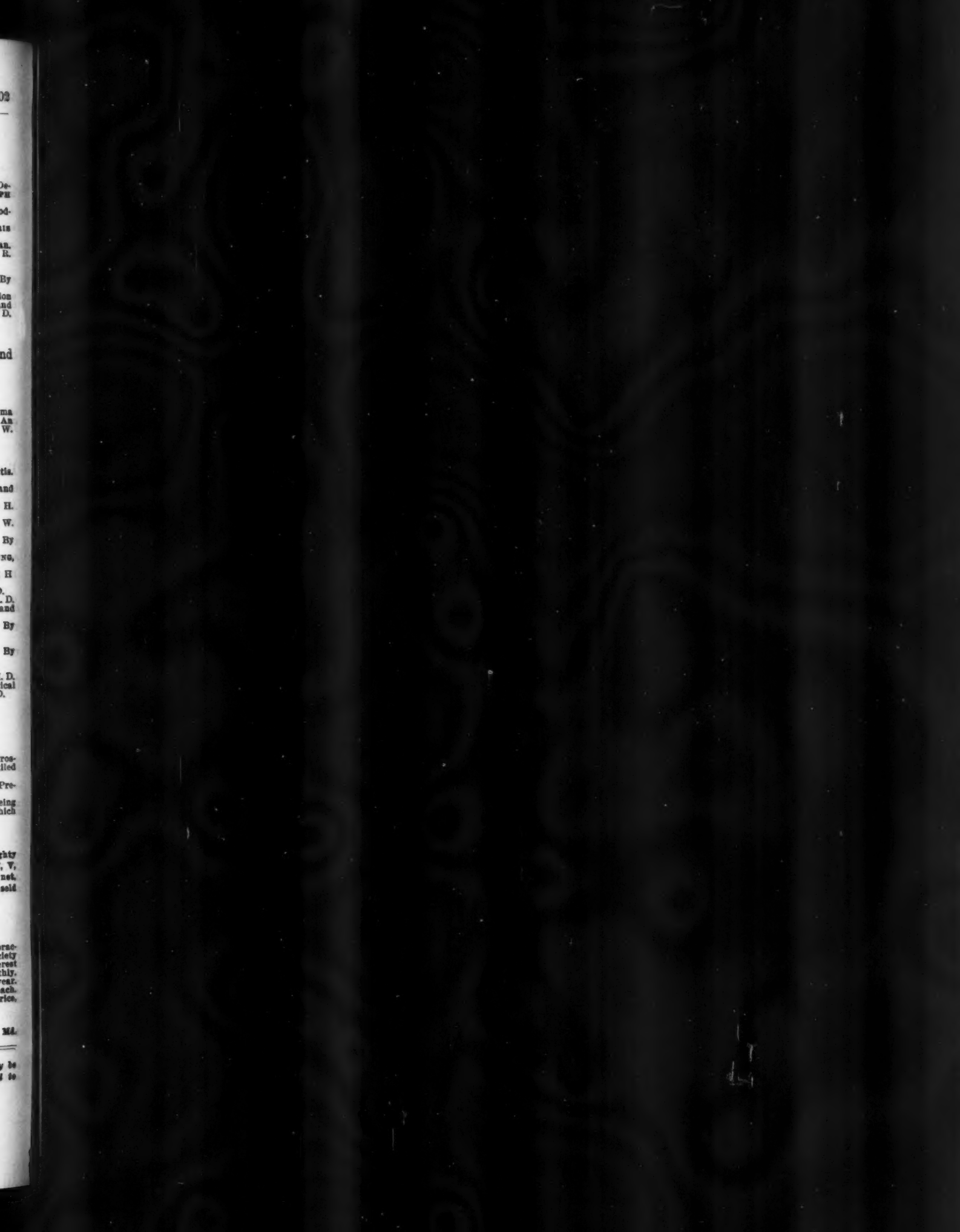
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